Index

IEE Proceedings

Vol. 131, 1984

ABBREVIATIONS

p paper, address or lecture
d discussion on a paper
a abstract of paper or address
e errata
s synopsis of a paper published in full in another Part of the IEE Proceesings

Author index

A

Abdel Halim, I.A.M. Approximate equivalent circuit for small solid-rotor induction motors **B** p70
Abdel-Rohman, M. Design of optimal observers for structural control **D** p158
Abdul-Ghani, F., and Davies, P.A. High-speed optical-fibre ring network with a register insertion access protocol **H** p83
Abuelma'atti, M.T. Baseband video distortion in memoryless nonlinear bandpass amplifiers (Summary) **F** p240
Abuelma'atti, M.T. Improved analysis of the harmonic and intermodulation performance of operational amplifiers **G** p226
Acha, J.I., Payán-Somet, J., and Civit, A. Design of very-low-frequency digital oscillators **G** p93
Adam, J.F., Bradbury, J., Charman, W.R., Orawski, G., and Vanner, M.J. Overhead lines—some aspects of design and construction **C** p149
Aditya, S., Chadha, D., and Arora, R.K. see Chadha, D.
Aggarwal, R.K., Johns, A.T., and Kalam, A. Computer modelling of series-compensated EHV transmission systems **C** p188
Aghvami, A.H. Performance analysis of 16-ary QAM signalling through two-link nonlinear channels in additive Gaussian nooise **F** p403
Ahmad, M.O., Ahmadi, M., and Ramachandran, V. Transfer-function realisation of a class of doubly terminated two-variable lossless networks and their application in two-dimensional analogue and digital filter design **G** p67
Ahmadi, M., Ahmad, M.O., and Ramachandran, V. see Ahmad, M.O.
Ahmadi, M., and Ramachandran, V. New method for generating two-variable VSHPs and its application in the design of two-dimensional recursive digital filters with prescribed magnitude and constant group delay responses **G** p151
Ainscough, J.A., O'Connor, B., and Rakowski, R. see O'Connor, B.
Akhtar, Q.I.M.B. Analytic separation of the factors contributing to the eddy-current loss in magnetically nonlinear steel **B** d37
Akiya, M., and Nakashima, S. High-precision MOS current mirror **I** p170
Al-Qirimli, F.A.M., Allos, J.E., and Mahmood, M.K. see Allos, J.E.
Al-Rawi, A.M., and Johns, A.T. see Johns, A.T.
Albertsen, N.C., and Pontoppidan, K. Analysis of subreflectors for dual reflector antennas **H** p205
Allan, J., Mellitt, B., and Pong, M.H. Rheostatic stabilisation of a chopper-controlled brake for traction drives **B** p190
Allen, C.R., and Yung, H.C. see Yung, H.C.
Allnutt, J.E., and Rogers, D.V. see Rogers, D.V.
Allos, J.E., Mahmood, M.K., and Al-Qirimli, F.A.M. Transient response of the modified variable-phase-shift automatic voltage regulator **G** p10
Ananda Mohan, P.V., Ramachandran, V., and Swamy, M.N.S. New general biquadratic active *RC* and switched-capacitor filters **G** p51
Anderson, A.P., Pereira, J.F.R., and Bennett, J.C. see Pereira, J.F.R.
Anderson, R.B., Van Niekerk, H.R., Kroninger, H., and Meal, D.V. Development and field evaluation of a lightning earth-flash counter **A** p118
Aoki, Y., Lo, H.-Y., and Lu, J.-H. see Lo, H.-Y.
Arambepola, B. Two-dimensional discrete convolution algorithm **F** p553
Arazi, B. Time-memory tradeoff in exponentiating a fixed element of $GF(q^n)$ requiring a short reference to the memory **E** p148
Argaman, G., and Saad, A. Synthesis of wideband lumped planar directional couplers **H** p198
Armenise, M.N., Canali, C., De Sario, M., Franzosi, P., Singh, J., Hutchins, R.H., and De La Rue, R.M. Dependence of inplane scattering levels in Ti : $LiNbO_3$ optical waveguides on diffusion time **H** p295
Armstrong, B.A., and McMahon, G.W. Discussion of the finite-element modelling and performance of ring-shell projectors **F** p275
Arora, R.K., Chadha, D., and Aditya, S. see Chadha, D.
Arrillaga, J., Graham, J.C., and Hisha, H. Microprocessor-controlled HVDC simulator **C** p197
Ash, C.P. Digital implementation of a narrowband satellite receiver **F** p570
Ashen, R.A., and Bolton, H.R. see Bolton, H.R.
Atkinson, P., and Nixon, M. Monitoring a deposition process using an extended adaptive Kalman filter **D** p1
Au, S., Santiago, J., and Smy, P.R. Analysis of the arc formed along the surface of a flat plate immersed in a laminar flow of gas **A** p605
Auchterlonie, L.J., Smith, D., and Bell, W.R. see Smith, D.
Avadhanlu, T.V. Evaluation and comparison of two types of induction-motor drives **B** p105
Avery, C.R., and Crawshaw, G. Remote control of traction power over two wires **B** p133
Ayoub, F., and Singh, K. Cryptographic techniques and network security **F** p684

B

Bach, J.L., de Fornel, B., Hapiot, J.C., and Pietrzak-David, M. see de Fornel, B.
Baker, S. Nationalised industries' overseas consultancies **A** p428
Balchin, M.J., and Davidson, J.A.M. see Davidson, J.A.M.
Banu, M., and Tsividis, Y. Detailed analysis of nonidealities in MOS fully integrated active *RC* filters based on balanced networks **G** p190
Bargiela, A., and Sterling, M.J.H. see Sterling, M.J.H.
Barker, R.W.J., and Hart, B.L. Low-voltage rail-supply-insensitive PTAT current generator **G** p242
Barlow, A.J., Dye, M.S., and Trayner, B.T. Disperion-induced nonreciprocal effects in phase-nulling fibre gyroscopes **H** p117
Barr, D.M., and Read, P.W. see Read, P.W.
Barton, P., Ward, J.S., Roberts, J.B.G., and Stanier, B.J. see Ward, J.S.
Barton, T.H., Divan, D.M., Hancock, G.C., and Hope, G.S. see Divan, D.M.
Bateman, A.J., and McGeehan, J.P. Data transmission over UHF fading mobile radio channels **F** p364 **F** d767
Bates, R.H.T. Full-wave computed tomography. Pt. 1: Fundamental theory **A** p610
Bates, R.H.T., Seagar, A.D., and Yeo, T.S. see Seagar, A.D.
Battersby, G.A., and Reed, K.B. Some ideas for a new style of electrical engineering degree course **A** p673
Beck, A.H.W., Hu, Q.L., and Gosling, I.G. see Hu, Q.L.
Bell, W.R., Smith, D., and Auchterlonie, L.J. see Smith, D.
Bell, W.W., and Smith, J.R. see Smith, J.R.
Belmans, R., Heylen, W., Vandenput, A., and Geysen, W. Influence of rotor-bar stiffness on the critical speed of an induction motor with an aluminium squirrel cage **B** p203
Bennett, J.C., Pereira, J.F.R., and Anderson, A.P. see Pereira, J.F.R.
Bennett, R.B., and Harris, F.R. Design features of the turbine-generator plant **C** p252
Benson, F.A., Sali, S., and Sitch, J.E. see Sali, S.
Benson, F.A., and Tischer, F.J. Some guiding structures for millimetre waves **A** p429
Bergen, S.A. Catastrophe model of the engineering design process **A** p181
Berger, C.S. Robust controller design by minimisation of the variation of the coefficients of the closed-loop characteristic equation **D** p103
Bernier, L.-G., Sphicopoulos, T., and Gardiol, F. see Sphicopoulos, T.
Berrie, T.W. Economics and technical consultancy **A** p378
Bertero, M., Pike, E.R., McWhirter, J.G., and Mol, C.de see Pike, E.R.
Beuret, G. Britain: Second best by choice? **A** p668
Bhat, B., and Koul, S.K. New approach to analyse strip- and microstrip-like transmission lines with anisotropic substrates having a tilted optical axis **H** p191 **H** e289
Bhat, K.N., Ramamurthy, V., and Kakati, D. see Ramamurthy, V.
Bhattacharyya, A.K., and Garg, R. Self and mutual admittance between two concentric, coplanar, circular radiating current sources **H** p217
Bhattacharyya, B.B., and Lopes, P.B. see Lopes, P.B.
Bhattacharyya, B.B., and Raut, R. see Raut, R.
Bickford, J.P., Doone, R.M., Ritchie, W.M., Savic, M.S., Shami, T.A., and Smith, C.T. Dynamic model of a surge arrester for computer calculation of lightning performance of substations **C** p357
Bickford, J.P., and Savic, M.S. Some aspects of system modelling for the estimation of lightning performance of high voltage substations **C** p204
Bidwell, R., and Johnson, R.H. Environmental consultancy **A** p371
Bien, Z., and Lyou, J. see Lyou, J.
Bienvenu, G., and Guillee, B. LSI circuits for adaptive array processing in passive sonar **F** p577
Binns, K.J., and Wong, T.M. Analysis and performance of a high-field permanent-magnet synchronous machine **B** p252
BirandN. Williams, M.T. Printed dipole millimetre-wave array using an insular guide feeder **H** p107
Bird, J.S., and Bridgewater, A.W. Performance of space-based radar in the presence of earth clutter **F** p491
Biswas, S.K., Gopakumar, K., Sathiakumar, S., and Vithayathil, J. see Gopakumar, K.
Blake, I.F., and Mark, J.W. see Mark, J.W.
Blake, R.J., Chappell, P.H., and Davis, R.M. see Chappell, P.H.
Blake, R.J., Chappell, P.H., and Ray, W.F. see Chappell, P.H.
Blake, R.J., Ray, W.F., Davis, R.M., Lawrenson, P.J., Stephenson, J.M., and Fulton, N.N. see Ray, W.F.
Bösch, M.A., Chin, G.M., Herbst, D., Grogan, J.K., Lemons, R.A., Tennant, D.M., and Tewksbury, S.K. NMOS silicon gate transistors in large-area laser-crystallised silicon layers **I** p121
Bodger, P.S. Modified and standard back-substitution fast-decoupled power flows compared to a Newton-like method for ill-conditioned systems **C** p23
Bolton, A.G. Analogue-to-digital transform to preserve the frequency-magnitude characteristics of all-pole filters **G** p131
Bolton, B. Changing patterns in electrical and electronic engineering education (Editorial) **A** p661
Bolton, B., France, J.T., and Prescott, A.J. A co-operative venture in electrical engineering education: designing a course **A** p684
Bolton, B., and Spanyol, J.L. The place of innovative and commercial skills in engineering education in the UK **A** p174
Bolton, B., and Spanyol, J.L. The product enterprise: activity programmes for engineering undergraduates **A** p708
Bolton, H.R., and Ashen, R.A. Influence of motor design and feed-current waveform on torque ripple in brushless DC drives **B** p82
Bond, L.J. Ultrasonics (Editorial) **A** p185
Bond, L.J., Punjani, M., and Saffari, N. Review of some recent advances in quantitative ultrasonic NDT **A** p265
Borge, R. Minimum bandwidth signals with various combinations of specified waveform parameters **F** p345
Borrego, J.M., Sun, H.J., and Gutmann, R.J. see Sun, H.J.
Borys, A. Nonlinear sensitivity in a single-loop feedback circuit **G** p35
Bourne, R. The rise and fall of the HNC: long live the HNC! **A** p745
Bowden, A.L., and Davies, E.J. Analytic separation of the factors contributing to the eddy-current loss in magnetically nonlinear steel **B** d37
Bowes, S.R., and Bullough, R. Fast modelling techniques for microprocessor-based optimal pulse-width-modulated control of current-fed inverter drives **B** p149
Bowes, S.R., and Bullough, R. PWM switching strategies for current-fed inverter drives **B** p195
Bowes, S.R., and Bullough, R. Steady-state performance of current-fed pulse-width-modulated inverter drives **B** p113

Bowes, S.R., and Clare, J. Steady-state performance of PWM inverter drives B d231
Bowker, K.J., and Owen, R.C. Review of recent developments in ultrasonic NDT systems in the CEGB A p252
Boys, J.T., Elder, J.M., and Woodward, J.L. see Elder, J.M.
Bradbury, J., Adam, J.F., Charman, W.R., Orawski, G., and Vanner, M.J. see Adam, J.F.
Bradwell, A. Importance of preventing moisture ingress to polymeric insulators B p245
Bradwell, A., and Wheeler, J.C.G. Developments in glass-fibre bridge and tunnel insulators for minimum clearances on British Railways B p1
Braham Levy, J., and Linkens, D.A. Spectral analysis of short-time biomedical data using adaptive filters A p164
Brajović, V.P. Bit synchronisation based on the sensitivity function F p424
Brenci, M., Scheggi, A.M., Conforti, G., and Falciai, R. see Scheggi, A.M.
Brickell, F., Westcott, B.S., and Graham, R.K. see Westcott, B.S.
Brickell, F., and Westcott, B.S. see Westcott, B.S.
Bridges, E., Shafai, L., Ittipiboon, A., and Hyjazie, F. see Shafai, L.
Bridgewater, A.W., and Bird, J.S. see Bird, J.S.
Brooks, R.W. China Light & Power's project strategy C p222
Brown, A.M. Project management for the design and supply of the power station mechanical and electrical plant C p236
Brown, E.P.M., and Sirisena, H.R. Power-system state estimator availability analysis C p117
Brown, J.E., and Jones, B.L. see Jones, B.L.
Brown, R., and Chambers, B. see Chambers, B.
Brown, R.C., Clarricoats, P.J.B., and Tun, S.M. see Clarricoats, P.J.B.
Brown, R.M., Miller, A.R., and Vegh, E. see Miller, A.R.
Brucoli, M., Torelli, F., and Trovato, M. Natural decomposition of interconnected power systems for stability studies C p16
Brugger, U.W., and Moschytz, G.S. see Moschytz, G.S.
Bruneel, H. Method of analysis for discrete-time buffers with randomly interrupted arrival stream E p187
Bruton, L.T., and Strecker, T.E. Two-dimensional discrete filters using spatial integrators G e271
Bryant, F.J., and Qadeer, A. Characteristics of double heterostructure $PbS_{1-x}Se_x$ diode lasers prepared by compositional interdiffusion I p113
Bryant, G.F., and Yeung, L.F. see Yeung, L.F.
Buckingham, M.J. On the response of a towed array to the acoustic field in shallow water F p298
Bullough, R., and Bowes, S.R. see Bowes, S.R.
Bundalo, Z.V., and Dokić, B.L. see Dokić, B.L.
Burbridge, R.N.G. Address as Chairman of the IEE Management & Design Division: Some art, some science and a lot of feedback A p24
Butcher, J. Challenges to engineering education A p662
Butler, C.M., and Yung, E.K. see Yung, E.K.
Buxton, B.F., Buxton, H., and Stephenson, B.K. Parallel computations of optic flow in early image processing F p593
Buxton, H., Buxton, B.F., and Stephenson, B.K. see Buxton, B.F.

C

Caldecott, R., DeVore, R.V., and Pleasants, S. see DeVore, R.V.
Campbell, S.L. On using orthogonal functions with singular systems D p267
Canali, C., Armenise, M.N., De Sario, M., Franzosi, P., Singh, J., Hutchins, R.H., and De La Rue, R.M. see Armenise, M.N.
Canas, A.A.D. Electronic hardware implementation of the principal components transformation for multichannel image data F p761
Cantoni, A., Evans, R.J., and Cook, B.J. Common-access channel network algorithm E p194
Cardwell, B.J., and Goodman, C.J. Response improvements in industrial DC drives derived from optimal analysis B p91
Carroll, J.E., Luff, G.F., and Probert, P.J. see Luff, G.F.
Carroll, J.E., and Herscher, B.A. see Herscher, B.A.
Carroll, J.E., and White, I.H. see White, I.H.
Carter, R.G. Engineering curriculum design A p678
Case, S.H., Hayes, A.M., McNeil, J.H., Morrison, R.E., and Riches, E.E. Electrification of Taiwan main-line railway from Keelung to Kaohsiung B d226
Chadha, D., Aditya, S., and Arora, R.K. Study of planar-helix slow-wave structure for application to travelling-wave tubes H p14
Chalmers, B.J., and Saleh, A.M. Analyses of solid-rotor induction machines B p15
Chalmers, I.D., Farish, O., Gilbert, A., and Dupuy, J. Leader development in short point-plane gaps in compressed SF_6 A p159
Cham, W.K., and Clarke, R.J. DC coefficient restoration in transform image coding F p709
Chambers, B., and Brown, R. SHIPS: the Sheffield industrial project scheme A p714
Chan, Wah-Chun, and Hsu, Yuan-Yih see Hsu, Yuan-Yih
Chandler, J.A., Hinch, L.W., Fair, R.I., Hughes, D.A., Peraino, J., and Rowe, P.W. Jamuna River 230 kV crossing, Bangladesh—Pt. 2: Construction C p319
Chandler, J.A., Hinch, L.W., Hughes, D.A., McDowell, D.M., Rowe, P.W., and Wood, A.B. Jamuna River 230 kV crossing, Bangladesh—Pt. 1: Design C p303
Chappell, P.H., Davis, R.M., and Blake, R.J. Operating principles for hidden-link convertor drive B p237
Chappell, P.H., Ray, W.F., and Blake, R.J. Microprocessor control of a variable reluctance motor B p51
Charman, W.R., Adam, J.F., Bradbury, J., Orawski, G., and Vanner, M.J. see Adam, J.F.
Chaudhuri, B.B., and Kundu, M.K. Digital line segment coding: A new efficient contour coding scheme E p143
Chen, B.-S. Controller synthesis of optimal sensitivity: multivariable case D p47
Chen, B.S., and Wang, W.J. Multipurpose controller synthesis in LQG optimal systems D p182
Chen, C.F., and Tai, L.C. see Tai, L.C.
Chen, J., Dagless, E.L., and Guo, Y. Performance measurements of scheduling strategies and parallel algorithms for a multiprocessor quick sort E p45
Chen, Yi-Lin, and Lo, Y.T. Reactive reflectors H p263
ChengKun, X. Calculation of amplification factor μ of static induced transistor I p87
Cheung, Y.S., Li, H.F., and Tsang, C.M. see Li, H.F.
Chin, G.M., Bösch, M.A., Herbst, D., Grogan, J.K., Lemons, R.A., Tennant, D.M., and Tewksbury, S.K. see Bösch, M.A.
Ching, P.C., and Goodyear, C.C. Walsh-transform coding of the speech residual in RELP coders G p29
Chinnasamy, P., and Palanichamy, S. see Palanichamy, S.
Chiu, C., and Freyer, J. Frequency modulation of Impatt diodes by optical illumination I p28
Chua, S.J. Distribution of modulated power among longitudinal modes of a semiconductor laser I p107
Civit, A., Acha, J.I., and Payán-Somet, J. see Acha, J.I.
Clare, J., and Bowes, S.R. see Bowes, S.R.
Clark, A.D., and Morrison, R.E. see Morrison, R.E.
Clark, A.P., Zhu, Z.C., and Joshi, J.K. Fast start-up channel estimation F p375
Clark, A.P., and Clayden, M. Pseudobinary Viterbi detector F p208
Clark, A.P., and Hau, S.F. Adaptive adjustment of receiver for distorted digital signals F p526
Clarke, R.J. Hybrid intraframe transform coding of image data F p2
Clarke, R.J., and Cham, W.K. see Cham, W.K.
Clarricoats, P.J.B., Olver, A.D., and Voglis, E.E. see Olver, A.D.
Clarricoats, P.J.B., Olver, A.D., and Yang, K.K. see Olver, A.D.
Clarricoats, P.J.B., Tun, S.M., and Brown, R.C. Performance of offset reflector antennas with array feeds H p172
Clarricoats, P.J.B., Tun, S.M., and Parini, C.G. Effects of mutual coupling in conical horn arrays H p165
Clayden, M., and Clark, A.P. see Clark, A.P.
Cochrane, P. Future trends in telecommunications transmission—a personal view F p669
Collin, R.E., and Schilling, H.W. see Schilling, H.W.
Collin, R.E., and Schilling, H.W. Dual-mode coaxial feed with low crosspolarisation H p405
Comley, V.E., and Ormondroyd, R.F. see Ormondroyd, R.F.
Conforti, G., Scheggi, A.M., Brenci, M., and Falciai, R. see Scheggi, A.M.
Constantinides, A.G., Curtis, T.E., and Wickenden, J.T. see Curtis, T.E.
Constantinides, A.G., Wu, Y.S., Curtis, T.E., and Wu, L.J. see Wu, Y.S.
Constantinides, A.G., and Mitrakos, D.K. see Mitrakos, D.K.
Constantinides, A.G., and Siu, W.-C. see Siu, W.-C.
Constantinides, A.G., and Siu, W.C. see Siu, W.C.
Cook, B.J., Cantoni, A., and Evans, R.J. see Cantoni, A.
Cook, D.C., Plumb, I.C., and Haydon, S.C. see Plumb, I.C.
Cook, D.C., and Haydon, S.C. Laboratory investigations of RF plasmas relevant to CW arc pluming at high-power aerials. Pt. 2: Relevance of scale-model studies based on pulsed RF techniques A p153
Cooper, J.A., Dewhurst, R.J., Moody, S., and Palmer, S.B. High-voltage spark discharge source as an ultrasonic generator A p275
Cory, B.J., and Macdonald, D.C. Eighth power systems computation conference (PSCC) C p363
Cory, B.J., and Walker, L. see Walker, L.
Crawshaw, G., and Avery, C.R. see Avery, C.R.
Creasey, D., and Smith, B. Sonar (Editorial) F p241
Creighton, G.K., and Mhango, L.M.C. see Mhango, L.M.C.
Cristina, S. Influence analysis of the shielding grid parameters on right-of-way and on corona effects of an EHV 3-phase transmission line C p333
Cristina, S., D'Amore, M., and Salerno, M. Microprocessor system for measuring frequency spectra and computing transient responses of a power apparatus A p312
Crnolija, P. Determination of voltage-distortion factor for a network loaded with several DC motor drives C p81
Cross, J.F., Roberts, J.B.G., Simpson, P., and Merrifield, B.C. see Roberts, J.B.G.
Culpan, E.A., and Dukes, R. see Dukes, R.
Curtis, T.E., Wickenden, J.T., and Constantinides, A.G. Control ordered sonar hardware (COSH)—a hardware based signal processing graph implementation F p584
Curtis, T.E., Wu, Y.S., Constantinides, A.G., and Wu, L.J. see Wu, Y.S.
Cusdin, M.J., Gough, P.T., and de Roos, A. see Gough, P.T.
Cutteridge, O.P.D., and Zhang, Y.S. Computer-aided linear modelling of high-frequency bipolar transistors G p252

D

D'Amore, M., Cristina, S., and Salerno, M. see Cristina, S.
D'Amore, M., Daniele, V., and Ghione, G. New analytical approach for computing DC unipolar corona losses A p318
Dagless, E.L., Chen, J., and Guo, Y. see Chen, J.
Dagless, E.L., Edwards, M.D., and Proudfoot, J.T. Shared memories in the CYBA-M multiprocessor E e155
Dagless, E.L., and Hanna, F.K. see Hanna, F.K.
Dakin, J.P., and King, A.J. Limitations of a single-optical-fibre fluorimeter system due to background fluorescence H p273
Dalle Mese, E., and Giuli, D. Detection probability of a partially fluctuating target F p179
Damgov, V.N. Injection-locked self-oscillating system as a one-port with controlled parameters G p1
Damgov, V.N. Nonlinear resonance and parametric phenomena in a complicated oscillating circuit G p24
Daniel, J.P., and Penard, E. see Penard, E.
Daniele, V., D'Amore, M., and Ghione, G. see D'Amore, M.
Das, A., Das, S.K., and Mathur, S.P. Radiation characteristics of higher-order modes in microstrip ring antenna H p102
Das, B.N., Deshmukh, P.S., and Pandharipande, V.M. Excitation of planar slot array from rectangular waveguide H p99
Das, B.N., and De, A. see De, A.
Das, S.K., Das, A., and Mathur, S.P. see Das, A.
Das, S.K., and Rajagopalan, P.K. Infinite determinant method for stability analysis of periodic systems D p189
Dass, B.K., and Krishnamurthy, J. Linear unequal error locating codes (UEL codes) F p52
Dattatreya, G.R., and Sarma, V.V.S. Decision tree design and applications in speech processing F p146
Davidson, J.A.M., and Balchin, M.J. Three-dimensional eddy-current calculation using loop variables to represent magnetic vector potential in conducting regions A p577
Davies, A.C., and Odintsov, B.V. see Odintsov, B.V.
Davies, D.E.N. Mutual coupling compensation for small, circularly symmetric planar antenna arrays H d426
Davies, D.E.N., Hoque, M., and Smith, M.S. see Hoque, M.
Davies, E.J., and Bowden, A.L. see Bowden, A.L.
Davies, P.A., Shaar, A.A., and Woodcock, C.F. see Shaar, A.A.
Davies, P.A., and Abdul-Ghani, F. see Abdul-Ghani, F.
Davies, P.A., and Pung, H.K. see Pung, H.K.
Davies, P.A., and Shaar, A.A. see Shaar, A.A.
Davis, R.M., Chappell, P.H., and Blake, R.J. see Chappell, P.H.
Davis, R.M., Ray, W.F., Lawrenson, P.J., Stephenson, J.M., Fulton, N.N., and Blake, R.J. see Ray, W.F.
De La Rue, R.M., Armenise, M.N., Canali, C., De Sario, M., Franzosi, P., Singh, J., and Hutchins, R.H. see Armenise, M.N.
De Sario, M., Armenise, M.N., Canali, C., Franzosi, P., Singh, J., Hutchins, R.H., and De La Rue, R.M. see Armenise, M.N.
De, A., and Das, B.N. Input impedance of probe-excited rectangular microstrip patch radiator H p31
DeVore, R.V., Pleasants, S., and Caldecott, R. Radio frequency characteristics of HVDC convertor station components C p61
Deacon, J.M., Lewis, M.F., West, C.L., and Humphryes, R.F. see Lewis, M.F.
Defranould, P. Bulk acoustic microwave delay lines: design, fabrication and performance A p216

Dellow, F., and Prentice, J.W. Degrees for technician engineers **A** p749
Denbigh, P.N. Ship velocity determination by Doppler and correlation techniques **F** p315
Denturck, B., Van Roey, J., and Lagasse, P.E. see Van Roey, J.
Denyer, P.B., Reekie, H.M., Petrie, P., Mavor, J., and Lau, C.H. see Reekie, H.M.
Deshmukh, P.S., Das, B.N., and Pandharipande, V.M. see Das, B.N.
Dewhurst, R.J., Cooper, J.A., Moody, S., and Palmer, S.B. see Cooper, J.A.
Diaz, L.M., and Smith, M.S. Parabolic torus transreflector antenna **H** p359
Dillon, T.S., Grasso, P.A., and Forward, K.E. see Grasso, P.A.
Divan, D.M., Hancock, G.C., Hope, G.S., and Barton, T.H. Microprogrammable sequential controller **E** p201
Dix, J.F., and Palmer, R.F. Study of the relative sonar performance of incoherent and coherent processing against echo fading in shallow water **F** p308
Dokić, B.L. CMOS Schmitt triggers **G** p197
Dokić, B.L., and Bundalo, Z.V. Stability analysis of *RC* oscillator using CMOS transistors **G** p127
Doone, R.M., Bickford, J.P., Ritchie, W.M., Savic, M.S., Shami, T.A., and Smith, C.T. see Bickford, J.P.
Doraiswami, R., and Silveira, H.M. see Silveira, H.M.
Drajić, D., and Vučetić, B. Evaluation of hybrid error control systems **F** p183
Drake, J.M., and Gregorio, J.A. see Gregorio, J.A.
Drossos, S.N., and Goutis, C.E. see Goutis, C.E.
Dukes, R., and Culpan, E.A. Acoustic emission: its techniques and applications **A** p241
Dunlop, J. Multiuser microprocessor development system for undergraduate training **A** p170
Duong, A.K., and Nassibian, A.G. Charge control model for switching transients of metal-tunnel oxide-semiconductor thyristor **I** p135
Dupuy, J., Chalmers, I.D., Farish, O., and Gilbert, A. see Chalmers, I.D.
Dye, M.S., Barlow, A.J., and Trayner, B.T. see Barlow, A.J.

E

Edwards, J.T. Role of the consultant in mass transit systems **A** p406
Edwards, M.D., Dagless, E.L., and Proudfoot, J.T. see Dagless, E.L.
Egau, P.C. Correlation systems in radio astronomy and related fields **F** p32
Egau, P.C. Error patterns in correlators with four-level quantisation **F** p40 **F** e239
Ekanayake, N. M-ary continuous phase frequency shift keying with modulation index $1/M$ **F** p173 **F** e694
El-Markabi, M.H.S., and Freeman, E.M. Normalised impedance of circular, trapezoidal and rectangular conductors in semiclosed slots: a unified transmission line approach **A** p129
El-Shobokshy, M.S., Zakzouk, A.K.M., and Mujahid, A. see Zakzouk, A.K.M.
Elboracy, F., and Zaki, M. see Zaki, M.
Elder, J.M., Boys, J.T., and Woodward, J.L. Self-excited induction machine as a small low-cost generator **C** p33
Elsonbaty, N.A., and Holmes, P.G. see Holmes, P.G.
Evans, F.J., and Kruser, M. Pole assignment in decentralised systems: a structural approach **D** p229
Evans, R.J., Cantoni, A., and Cook, B.J. see Cantoni, A.
Evans, R.J., and Xianya, X. see Xianya, X.
Excell, P.S. Ignition of flammable gas mixtures by X-band microwave discharges **A** p103
Excell, P.S., and Rousseau, M. see Rousseau, M.

F

Fair, R.I., Chandler, J.A., Hinch, L.W., Hughes, D.A., Peraino, J., and Rowe, P.W. see Chandler, J.A.
Falciai, R., Scheggi, A.M., Brenci, M., and Conforti, G. see Scheggi, A.M.
Falkner, A.H. Novel feedback capacitor-type gauge **A** p93
Farina, A., and Studer, F.A. Application of Gram–Schmidt algorithm to optimum radar signal processing **F** p139
Farish, O., Chalmers, I.D., Gilbert, A., and Dupuy, J. see Chalmers, I.D.
Farrier, D.R. Extension of maximum entropy spectral analysis. Part 1: The inclusion of prior information **F** p15
Farrier, D.R. Extension of maximum entropy spectral analysis. Part 2: Interpretation and application of the method **F** p25
Farrier, D.R. Relationship between the maximum entropy method and a likelihood ratio test **F** p714
Fernandes, H.C.C., and Giarola, A.J. Dispersion in unilateral fin lines with two dielectric layers **H** p139
Fernando, K.V., and Nicholson, H. Computation of balanced realisations from transfer functions **D** p203
Fernando, K.V., and Nicholson, H. Square-root solution for the discrete-time Lyapunov equation **D** p107
Filanovsky, I.M., Piskarev, V.A., and Stromsmoe, K.A. Nonsymmetric multivibrators with an auxiliary *RC*-circuit **G** p141
Fock, A.Ah., and Hart, P.M. New method for measuring X_d and X_q based on the *P-Q* diagram of the lossy salient-pole machine **B** p259
de Fornel, B., Bach, J.L., Hapiot, J.C., and Pietrzak-David, M. Numerical speed control of a current-fed asynchronous machine by measurement of supply voltages **B** p165
de Fornel, F., Ragdale, C.M., and Mears, R.J. Analysis of single-mode fused tapered fibre couplers **H** p221
Forse, N.J.A., and See, P.J. see See, P.J.
Forward, K.E., Grasso, P.A., and Dillon, T.S. see Grasso, P.A.
Foulk, P.W., Heath, F.G., and Li, D.Y. see Heath, F.G.
Foxell, C.A.P. Address as Chairman of the IEE Electronics Division: The business of VLSI **A** p17
France, J.T., Bolton, B., and Prescott, A.J. see Bolton, B.
Francis, L.H., Knapp, A.G., Washington, D., Guest, A.J., Gill, R.W.A., and Pook, R. see Knapp, A.G.
Frangos, P.P., and Wright, G.T. see Wright, G.T.
Frangoulis, E.D., Yoshida, K., and Turner, L.F. Adaptive differential pulse-code modulation with adaptive bit allocation **F** p542
Franzosi, P., Armenise, M.N., Canali, C., De Sario, M., Singh, J., Hutchins, R.H., and De La Rue, R.M. see Armenise, M.N.
Fraser, J.R., and Penman, J. see Penman, J.
Freeman, E.M., Rajanathan, C.B., and Lowther, D.A. see Rajanathan, C.B.
Freeman, E.M., and El-Markabi, M.H.S. see El-Markabi, M.H.S.
French, P.St.-J.R. Switched reluctance motor drives for rail traction: a second view **B** d263
French, P.St.-J.R. Switched reluctance motor drives for rail traction: relative assessment **B** p209
Freyer, J., Zhang, X., Weimann, G., and Schlapp, W. see Zhang, X.
Freyer, J., and Chiu, C. see Chiu, C.
Fudge, R.E. An analysis of quasi-synchronous AM mobile radio operation and recommended design parameter values **F** p156
Fujino, T., Umeda, Y., and Yamazaki, E. Transient probability response of cycle slip occurrence in the PSK-TDMA carrier recovery **F** p729
Fujisada, H., and Nakagawa, T. see Nakagawa, T.
Fukumoto, T., Fukushima, T., Ueno, K., and Tanaka, K. see Fukushima, T.
Fukushima, T., Ueno, K., Fukumoto, T., and Tanaka, K. SVG guard-ring Al-Ti-Si Schottky diode for high-speed LSI applications **I** p59
Fulton, N.N., Ray, W.F., Davis, R.M., Lawrenson, P.J., Stephenson, J.M., and Blake, R.J. see Ray, W.F.

G

Galanos, G., Vovos, N., and Giannakopoulos, G. Combined control and protection system for improved performance of HVDC links in the presence of AC faults **C** p129
Garba, A.I., and Mouftah, H.T. see Mouftah, H.T.
Gardiol, F., Sphicopoulos, T., and Bernier, L.-G. see Sphicopoulos, T.
Gardner, F., and Roberts, J.H. see Roberts, J.H.
Garg, R., and Bhattacharyya, A.K. see Bhattacharyya, A.K.
Gawthrop, P.J. Parameter estimation from noncontiguous data **D** p261
Gaythorpe, R.S. The right tool for the job. Improving export sales **A** p79
Gazey, B.K., and Smith, B.V. see Smith, B.V.
Georganas, N.D., and McDonnell, M. see McDonnell, M.
Gessing, R. Recursive smoothing for discrete-time systems as a filtering problem **D** p140
Gessing, R. Stochastic optimal control and its connection with estimation **D** p165
Geysen, W., Belmans, R., Heylen, W., and Vandenput, A. see Belmans, R.
Ghione, G., D'Amore, M., and Daniele, V. see D'Amore, M.
Giannakopoulos, G., Galanos, G., and Vovos, N. see Galanos, G.
Giarola, A.J., and Fernandes, H.C.C. see Fernandes, H.C.C.
Gidon, P., Valette, S., Lizet, J., Mottier, P., Jadot, J.P., and Renard, S. see Valette, S.
Gilbert, A., Chalmers, I.D., Farish, O., and Dupuy, J. see Chalmers, I.D.
Gill, R.W.A., Knapp, A.G., Washington, D., Guest, A.J., Pook, R., and Francis, L.H. see Knapp, A.G.
Giuli, D., and Dalle Mese, E. see Dalle Mese, E.
Godec, Z. New method for determination of steady-state temperature rises of transformers **A** p307
Goldsack, J.S. Design features of the steam generator **C** p261
Goldwag, E., Littlewood, P.A., and McCann, B. Station layout and design of major mechanical auxiliary systems related to the turbine generator **C** p240
Goodman, C.H.L. Band structure of α-Sn and Ge-Sn alloys **I** d109
Goodman, C.J., Mellitt, B., and Mouneimne, Z.S. see Mellitt, B.
Goodman, C.J., and Cardwell, B.J. see Cardwell, B.J.
Goodyear, C.C., and Ching, P.C. see Ching, P.C.
Gopakumar, K., Sathiakumar, S., Biswas, S.K., and Vithayathil, J. Modified current source inverter fed induction motor drive with reduced torque pulsations **B** p159
Gopal, S., and Rao, Y.N. Flashover phenomena of polluted insulators **C** p140
Gosling, I.G., Hu, Q.L., and Beck, A.H.W. see Hu, Q.L.
Gosling, W. Changing rôle of the engineer in the electronics industry **A** p665
Gough, P.T., de Roos, A., and Cusdin, M.J. Continuous transmission FM sonar with one octave bandwidth and no blind time **F** p270
Goutis, C.E., and Drossos, S.N. Fast iterative algorithm for reconstruction from divergent-ray projections **E** p89
Govan, G.R., and Littlewood, P.A. Design features of the coal and ash handling plant **C** p268
Graham, J.C., Arrillaga, J., and Hisha, H. see Arrillaga, J.
Graham, R.K., Westcott, B.S., and Brickell, F. see Westcott, B.S.
Grant, D. Design of phase-change two-speed windings for induction motors, using pole-amplitude modulation techniques **B** d232
Grant, P.M., and McMurtrie, R. Continuing education for industrial electronics graduates **A** p734
Grant, P.M., and Rutter, M.J. Application of gradient adaptive lattice filters to channel equalisation **F** p473
Granville-George, D.A., and Woods, D. Dual 4-port bidirectional network analyser with vector-null detection for the frequency range 1–800 MHz **A** p85
Grasso, P.A., Dillon, T.S., and Forward, K.E. Memory interference in multimicroprocessor systems with a time-shared bus **E** p61
Gray, J.O., and Valsamis, D. Functional bounds on the time response of multivariable nonlinear systems **D** p92
Gregorio, J.A., and Drake, J.M. Frequency response of *RC*-active circuits using Norton amplifiers with highly asymmetrical slew rates **G** p237
Grimsdale, R.L., Hull, R., and Halsall, F. see Hull, R.
Groeneveld, G.J., Snijders, A.L., Koopmans, G., and Vermeer, J. Improved method to calculate the critical conditions for drying out sandy soils around power cables **C** p42
Grogan, J.K., Bösch, M.A., Chin, G.M., Herbst, D., Lemons, R.A., Tennant, D.M., and Tewksbury, S.K. see Bösch, M.A.
Grogan, W.R. System approach to a broader concept in engineering education: the WPI plan **A** p676
Groves, S.H., and Paul, W. Band structure of α-Sn and Ge-Sn alloys **I** d109
Guest, A.J., Knapp, A.G., Washington, D., Gill, R.W.A., Pook, R., and Francis, L.H. see Knapp, A.G.
Guile, A.E. Electric arcs: their electrode processes and engineering applications **A** p450
Guile, A.E., Heylen, A.E.D., and Morgan, D.V. see Heylen, A.E.D.
Guillee, B., and Bienvenu, G. see Bienvenu, G.
Gull, S.F., and Skilling, J. Maximum entropy method in image processing **F** p646
Guo, T.-Y., Hwang, C., and Shih, Y.-P. see Hwang, C.
Guo, Y., Chen, J., and Dagless, E.L. see Chen, J.
Gura, J.H. Role of the building services engineering consultant **A** p413
Gutmann, R.J., Sun, H.J., and Borrego, J.M. see Sun, H.J.
Guy, J.R.F., and Poelman, A.J. see Poelman, A.J.

H

Hagisawa, T., Sekine, M., Musha, T., Tomita, Y., Irabu, T., and Kiuchi, E. see Sekine, M.
Hall, C.M., James, J.R., and John, G. see James, J.R.
Hall, P.S., and James, J.R. Crosspolarisation behaviour of series-fed microstrip linear arrays **H** p247
Halsall, F., Hull, R., and Grimsdale, R.L. see Hull, R.
Hampshire, M.J., and Saunders, D.W. see Saunders, D.W.
Hancock, G.C., Divan, D.M., Hope, G.S., and Barton, T.H. see Divan, D.M.
Hanna, F.K., and Dagless, E.L. Multiprocessors and distributed computing (Editorial) **E** p37
Hapiot, J.C., de Fornel, B., Bach, J.L., and Pietrzak-David, M. see de Fornel, B.
Hargrave, P.J., Ward, C.R., Robson, A.J., and McWhirter, J.G. see Ward, C.R.
Harris, F.R., and Bennett, R.B. see Bennett, R.B.

Hart, B.L., and Barker, R.W.J. see Barker, R.W.J.
Hart, P.M., and Fock, A.Ah. see Fock, A.Ah.
Haruna, M., and Koyama, J. Thermo-optic waveguide interferometric modulator/switch in glass **H** p322
Hastings, W.I., Nisbet, W.T., and Helszajn, J. see Nisbet, W.T.
Hau, S.F., and Clark, A.P. see Clark, A.P.
Haydon, S.C., Plumb, I.C., and Cook, D.C. see Plumb, I.C.
Haydon, S.C., and Cook, D.C. see Cook, D.C.
Hayes, A.M., Case, S.H., McNeil, J.H., Morrison, R.E., and Riches, E.E. see Case, S.H.
Haynes, N.A., and Moore, W.R. see Moore, W.R.
Head, J.F. Role of the consultant in offshore oil industry projects **A** p397
Heath, F.G., Foulk, P.W., and Li, D.Y. Analysis and restructuring of concurrent systems using Prolog **E** p169
Heimer, H. Castle Peak B Power Station, Hong Kong (Editorial) **C** p216
Helszajn, J., Nisbet, W.T., and Hastings, W.I. see Nisbet, W.T.
Helszajn, J., and Lyon, R.W. Mode charts of magnetised and demagnetised planar hexagonal resonators on ferrite substrates using finite elements **H** p420
Henderson, C., and White, J.C.F. Control and instrumentation design **C** p283
Henning, I.D. High-speed transient effects in quarternary lasers **H** p133
Herbst, D., Bösch, M.A., Chin, G.M., Grogan, J.K., Lemons, R.A., Tennant, D.M., and Tewksbury, S.K. see Bösch, M.A.
Herscher, B.A., and Carroll, J.E. Optimal use of redundant information in multiport reflectometers by statistical methods **H** p25
Hertz, D., Jury, E.I., and Zeheb, E. Simplified analytic stability test for systems with commensurate time delays **D** p52
Heylen, A.E.D., Guile, A.E., and Morgan, D.V. Electron field emission from copper with various thicknesses of oxide film **A** p111
Heylen, W., Belmans, R., Vandenput, A., and Geysen, W. see Belmans, R.
Higgins, M., Titmuss, G., and Martyn, R. Improved acousto-optic laser scanner guidance system **H** p229
Hinch, L.W., Chandler, J.A., Fair, R.I., Hughes, D.A., Peraino, J., and Rowe, P.W. see Chandler, J.A.
Hinch, L.W., Chandler, J.A., Hughes, D.A., McDowell, D.M., Rowe, P.W., and Wood, A.B. see Chandler, J.A.
Hinton, O.R., and Saleh, R.A. Two-dimensional discrete Fourier transform with small multiplicative complexity using number theoretic transforms **G** p234
Hirasa, T., Takeda, Y., and Morimoto, S. see Takeda, Y.
Hisha, H., Arrillaga, J., and Graham, J.C. see Arrillaga, J.
Hodge, P., Winter, C.S., Tredgold, R.H., and Khoshdel, E. see Winter, C.S.
Hodgkiss, W., Turner, L.F., and Pennington, J. Serial data transmission over HF radio links **F** p107
Holbeche, R.J., and Mannings, R.T. Comparison between time-compression multiplexing and frequency-division multiplexing over narrowband radio systems **F** p130
Holmes, J.N., and Quarmby, D.J. see Quarmby, D.J.
Holmes, P.G., and Elsonbaty, N.A. Cycloconvertor-excited divided-winding doubly-fed machine as a wind-power convertor **B** p61
Hope, G.S., Divan, D.M., Hancock, G.C., and Barton, T.H. see Divan, D.M.
Hope, G.S., Kanniah, J., Tripathy, S.C., and Malik, O.P. see Kanniah, J.
Hoque, M., Smith, M.S., and Davies, D.E.N. Compact gain measurements on reflector antennas **H** p371
Hori, N., Nikiforuk, P.N., and Kanai, K. A simple adaptive observer for a class of multi-output systems **D** p142
Howson, D.P. Wide-gap re-entrant cavity resonators for 900–1500 MHz **H** p423
Hrvatin, S.E., and Mark, J.W. Predictive entropy coding for speech analysis **F** p537
Hsu, Yuan-Yih, and Chan, Wah-Chun Optimal variable-structure controller for DC motor speed control **D** p233
Hu, Q.L., Gosling, I.G., and Beck, A.H.W. Five-way gyrotron power combiner **H** p65
Huertas, J.L., Rodriguez-Vazquez, A., and Perez-Verdu, B. High-frequency design of sinusoidal oscillators realised with operational amplifiers **G** p137
Hughes, D.A., Chandler, J.A., Hinch, L.W., Fair, R.I., Peraino, J., and Rowe, P.W. see Chandler, J.A.
Hughes, D.A., Chandler, J.A., Hinch, L.W., McDowell, D.M., Rowe, P.W., and Wood, A.B. see Chandler, J.A.
Hull, R., Halsall, F., and Grimsdale, R.L. Virtual resource ring: Technique for decentralised resource management in fault-tolerant distributed computer systems **E** p38
Humphryes, R.F., Lewis, M.F., West, C.L., and Deacon, J.M. see Lewis, M.F.
Husband, R., and Kouvaritakis, B. see Kouvaritakis, B.
Hutchins, R.H., Armenise, M.N., Canali, C., De Sario, M., Franzosi, P., Singh, J., and De La Rue, R.M. see Armenise, M.N.
Hwang, C., Guo, T.-Y., and Shih, Y.-P. Numerical inversion of multidimensional Laplace transforms via block-pulse functions **D** d268
Hyjazie, F., Shafai, L., Ittipiboon, A., and Bridges, E. see Shafai, L.

I

Iio, S., Nakano, H., and Yamauchi, J. see Nakano, H.
Ilyas, M., and Mouftah, H.T. Quasi cut-through: New hybrid switching technique for computer communication networks **E** p1
Ingram, D.G.W., and Takawira, F. see Takawira, F.
Irabu, T., Sekine, M., Musha, T., Tomita, Y., Hagisawa, T., and Kiuchi, E. see Sekine, M.
Irwin, G.W., Roddy, D.J., and Wilson, H. see Roddy, D.J.
Ishida, N., Iso, A., and Izumisawa, T. see Iso, A.
Iso, A., Izumisawa, T., and Ishida, N. Advanced domestic digital satellite communications systems experiments **F** p92
Ito, M.R., and Wong, F.S. see Wong, F.S.
Ittipiboon, A., Shafai, L., Bridges, E., and Hyjazie, F. see Shafai, L.
Izumisawa, T., Iso, A., and Ishida, N. see Iso, A.

J

Jack, M.A., and Robertson, J.M. Gateway: a teaching exercise in gate-array technology **A** p722
Jadot, J.P., Valette, S., Lizet, J., Mottier, P., Gidon, P., and Renard, S. see Valette, S.
Jain, N.K., and Singhal, K. Efficient computation and minimisation of root sensitivities of analogue and digital networks **G** p245
Jakobsen, K., Kildal, P.-S., and Rao, K.Sudhakar see Kildal, P.-S.
James, J.R., John, G., and Hall, C.M. Millimetre-wave hybrid dielectric-microstrip antenna array **H** p341
James, J.R., and Hall, P.S. see Hall, P.S.
Jennings, S.M. Autocorrelation function of the multiplexed sequence **F** p169
Jervis, M.W. Control and instrumentation of large nuclear power stations. A review of future trends **A** p481
John, G., James, J.R., and Hall, C.M. see James, J.R.
John, M.N. Address as IEE President: Electricity supply—problems and possibilities **A** p1
John, M.N. Consultancy (Editorial) **A** p622
John, M.N. Consultancy (Editorial) **A** p341
A e622
Johns, A.T., Aggarwal, R.K., and Kalam, A see Aggarwal, R.K.
Johns, A.T., and Al-Rawi, A.M. Developments in the simulation of long-distance single-pole-switched EHV systems **C** p67
Johnson, D.A.H., and Silver, D.M. see Silver, D.M.
Johnson, R.H., and Bidwell, R. see Bidwell, R.
Johnston, J.A. Generating analogue FM pulses using a 1 bit digital technique **F** p349
Johnston, S.L. Effectiveness of a ground jammer **F** d423
Jones, B.L., and Brown, J.E. Electrical variable-speed drives **A** p516
Jones, N.B., and Lago, P.J. see Lago, P.J.
Joshi, J.K., Clark, A.P., and Zhu, Z.C. see Clark, A.P.
Jury, E.I., Hertz, D., and Zeheb, E. see Hertz, D.

K

Kadoorie, Lord. The role of the engineer and the future of Hong Kong (Lecture) **C** p218
Kailasa Rao, A., and Naidu, D.S. Singular perturbation method for Kalman filter in discrete systems **D** p39
Kakati, D., Ramamurthy, V., and Bhat, K.N. see Ramamurthy, V.
Kalam, A., Aggarwal, R.K., and Johns, A.T. see Aggarwal, R.K.
Kalyanasundaram, N. Large-signal field analysis of an O-type travelling-wave amplifier. Part 1: Theory **I** p145
Kanai, K., Hori, N., and Nikiforuk, P.N. see Hori, N.
Kanniah, J., Tripathy, S.C., Malik, O.P., and Hope, G.S. Microprocessor-based adaptive load-frequency control **C** p121
Karpovsky, M. Memory testing by linear checks **E** p158
Karwowski, A. Low-frequency approach to the problem of a horizontal wire antenna above an imperfect ground **H** p214
Kawano, K. Hybrid-mode analysis of a broadside-coupled microstrip line **H** p21
Kay, L. Electronic aids for blind persons: an interdisciplinary subject **A** p559
Kayran, A.H., Lim, Y.C., and Parker, S.R. Decimation technique for optimal data transfer in one- and two-dimensional FIR digital-filter implementations **G** p86
Kazovsky, L.G. Performance of *M*-ary feedback communication systems **F** p80
Kennedy, G. Independent consulting engineering **A** p343
Khoshdel, E., Winter, C.S., Tredgold, R.H., and Hodge, P. see Winter, C.S.
Kildal, P.-S., Jakobsen, K., and Rao, K.Sudhakar Meniscus-lens-corrected corrugated horn: a compact feed for a Cassegrain antenna **H** p390
King, A.J., and Dakin, J.P. see Dakin, J.P.
King, R.W. Breadth at the top: the four-year degree in electronic engineering at the University of Southampton **A** p690
Kiuchi, E., Sekine, M., Musha, T., Tomita, Y., Hagisawa, T., and Irabu, T. see Sekine, M.
Knapp, A.G., Mansell, J.R., Woodhead, A.W., and Stone, H.D. see Mansell, J.R.
Knapp, A.G., Washington, D., Guest, A.J., Gill, R.W.A., Pook, R., and Francis, L.H. Large-area channel electron multiplier for CRT applications **I** p6
Knapp, A.G., Woodhead, A.W., Washington, D., Mansell, J.R., Overall, C.D., and Schagen, P. see Woodhead, A.W.
Kompa, G. Optical short-range radar for level control measurement **H** p159
Kooi, P.S., Leong, M.S., and Satya Prakash, A.L. see Leong, M.S.
Kooi, P.S., Leong, M.S., and Thng, H. Application of modal analysis to a waveguide-cavity junction formed by an iris obstable **H** p35
Koopmans, G., Groeneveld, G.J., Snijders, A.L., and Vermeer, J. see Groeneveld, G.J.
Koren, I., and Shalev, E. Reliability analysis of hybrid redundancy systems **E** p31
Kormilo, S., and Robinson, P. Electronic control of small hydroelectric schemes using a microcomputer **E** p132
Korn, I. Analogue adaptive hybrid for digital transmission on subscriber lines **F** p517
Korn, I. Error probability of QASK with rectangular and circular symbol constellations in the presence of intersymbol quadrature channel and adjacent channel interference **F** p194
Koul, S.K., and Bhat, B. see Bhat, B.
Kouvaritakis, B., and Husband, R. Complex sectors and multivariable on-axis and off-axis circle criteria **D** p209
Kowatsch, M. Application of surface-acoustic-wave technology to burst-format spread-spectrum communications **F** p734
Koyama, J., and Haruna, M. see Haruna, M.
Kreutzer, H.W., and Werner, W. HHI service integrated optical broadband communications system: results of a long-time operation and review **H** p87
Krichevsky, M., Rabinovici, R., and Sharir, B. Eddy-current starter for AC motors **B** p13
Krishnamurthy, J., and Dass, B.K. see Dass, B.K.
Kroninger, H., Anderson, R.B., Van Niekerk, H.R., and Meal, D.V. see Anderson, R.B.
Kruser, M., and Evans, F.J. see Evans, F.J.
Kumar, A., and Malik, O.P. Discrete analysis of load-frequency control problem **C** p144
Kundu, M.K., and Chaudhuri, B.B. see Chaudhuri, B.B.

L

Lagasse, P.E., Van Roey, J., and Denturck, B. see Van Roey, J.
Lago, P.J., and Jones, N.B. Parameter estimation of system dynamics with modulation-type noise—application to the modelling of the dynamic relationship between the EMG and force transients in muscle **D** p221
Lala, P.K., and Roberts, M.W. see Roberts, M.W.
Lamdan, T. VLSI—evolution or revolution **E** p230
Lamport, D.L., Woodhead, A.W., Washington, D., and Overall, C.D. Flat deflection system for a channel multiplier CRT **I** p10
Land, D.V. Measurement of radio-frequency and microwave fields by nonresonant perturbation **H** p1
Lastman, G.J., Sinha, N.K., and Rózsa, P. On the selection of states to be retained in a reduced-order model **D** p15
Lau, C.H., Reekie, H.M., Petrie, P., Mavor, J., and Denyer, P.B. see Reekie, H.M.
Laughton, M.A. University-based consultancy **A** p362
Lawrenson, P.J., Ray, W.F., Davis, R.M., Stephenson, J.M., Fulton, N.N., and Blake, R.J. see Ray, W.F.
Lawson, S.S., and Terplan, S. High-speed single-board flexible hardware implementation of a wave digital filter **G** p17
Laybourn, P.J.R. Integrated optics (Editorial) **H** p281
Lee, K.F., and Wong, P.F. Directivities of helical antennas radiating in the axial mode **H** p121
Lee, K.Y., Park, Y.M., and Ortiz, J.L. Fuel-cost minimisation for both real- and reactive-power dispatches **C** p85

Leistner, D. Single drift impatt diodes on diamond heat sinks for W-band frequencies I p56
Lemons, R.A., Bösch, M.A., Chin, G.M., Herbst, D., Grogan, J.K., Tennant, D.M., and Tewksbury, S.K. see Bösch, M.A.
Leong, M.S., Kooi, P.S., and Satya Prakash, A.L. Finite-element analysis of shielded microstrip disc resonator H p126
Leong, M.S., Kooi, P.S., and Thng, H. see Kooi, P.S.
Lesz, T., and Olcayto, E. see Olcayto, E.
Lewis, M.F., West, C.L., Deacon, J.M., and Humphryes, R.F. Recent developments in SAW devices A p186
Lewis, P. Investigation of a radar site effect F p695
Lewis, R.B. Track-recording techniques used on British Rail B p73
Li, D.Y., Heath, F.G., and Foulk, P.W. see Heath, F.G.
Li, H.F., Tsang, C.M., and Cheung, Y.S. Pattern recognition for automated wire bonding E p19
Lidgate, D. Adddress as Chairman of the IEE NW Centre, Supply Section: Computers in power systems C p113
Lidgate, D., and Psomadellis, F. see Psomadellis, F.
Lim, Y.C., Kayran, A.H., and Parker, S.R. see Kayran, A.H.
Linggard, R., McIlroy, C.D., and Monteith, W. see McIlroy, C.D.
von Lingelsheim, T. Planar optical demultiplexer with chirped grating for WDM fibre systems H p290
Linkens, D.A., and Braham Levy, J. see Braham Levy, J.
Littlewood, P.A., Goldwag, E., and McCann, B. see Goldwag, E.
Littlewood, P.A., and Govan, G.R. see Govan, G.R.
Livett, A.J., and Preston, R.C. see Preston, R.C.
Livingstone, A.W. An inside view of 'Japan inc.' A p335
Lizet, J., Valette, S., Mottier, P., Jadot, J.P., Gidon, P., and Renard, S. see Valette, S.
Lo, H.-Y., Lu, J.-H., and Aoki, Y. Programmable variable-rate up/down counter for generating binary logarithms E p125
Lo, Y.T., and Chen, Yi-Lin see Chen, Yi-Lin
Lockwood, M. Simplified estimation of ray-path mirroring height for HF radiowaves reflected from the ionospheric F-region F p117
Lopes, P.B., and Bhattacharyya, B.B. Classification, generation and evaluation of actively compensated noninverting finite-gain amplifiers G p177
Lowther, D.A., Rajanathan, C.B., and Freeman, E.M. see Rajanathan, C.B.
Lu, J.-H., Lo, H.-Y., and Aoki, Y. see Lo, H.-Y.
Luff, G.F., Probert, P.J., and Carroll, J.E. Real-time six-port reflectometer H p186
Lund, T. Simple and sensitive *in situ* algae fluorescence sensor based on fibre optics H p49
Luque, E., Serra, I., and Moreno, L. see Serra, I.
Luque, E., and Ripoll, A. Approach for register allocation in microprogram generation G p99
Lyon, R.W., and Helszajn, J. see Helszajn, J.
Lyou, J., and Bien, Z. Note on decentralised stabilisation of unknown linear interconnected systems D p202

M

M. Ashworth, J. The university as a business A p635
Macdonald, D.C., and Cory, B.J. see Cory, B.J.
Magdy, M.A., and Ng, T.S. see Ng, T.S.
Mahalanabis, A.K., and Ray, G. Efficient algorithm for the optimal control of interconnected stochastic systems D p99
Mahmood, M.K., Allos, J.E., and Al-Qirimli, F.A.M. see Allos, J.E.
Majithia, J.C., Yu, W., and Wong, J.W. see Yu, W.
Malik, O.P., Kanniah, J., Tripathy, S.C., and Hope, G.S. see Kanniah, J.
Malik, O.P., and Kumar, A. see Kumar, A.
Mann, D.G. Role of the consulting engineer in quality assurance A p389
Mannings, R.T., and Holbeche, R.J. see Holbeche, R.J.
Mansell, J.R., Woodhead, A.W., Knapp, A.G., and Stone, H.D. Colour selection in the channel-multiplier CRT I p13
Mansell, J.R., Woodhead, A.W., Washington, D., Overall, C.D., Knapp, A.G., and Schagen, P. see Woodhead, A.W.
Marinčič, A.S., and Temerinac, M.R. see Temerinac, M.R.
Mark, J.W., and Blake, I.F. Rapid acquisition techniques in CDMA spread-spectrum systems F p223
Mark, J.W., and Hrvatin, S.E. see Hrvatin, S.E.
Martyn, R., Higgins, M., and Titmuss, G. see Higgins, M.
Mathur, S.P., Das, A., and Das, S.K. see Das, A.
Matsueda, H., Tanaka, T.P., and Nakano, H. An optoelectronic integrated device including a laser and its driving circuit H p299
Mavor, J., Reekie, H.M., Petrie, P., Denyer, P.B., and Lau, C.H. see Reekie, H.M.
Mavor, J., and Wu, B. see Wu, B.
Mayne, D.Q., and Sahba, M. see Sahba, M.
McCann, B., Goldwag, E., and Littlewood, P.A. see Goldwag, E.
McCanny, J.V., McWhirter, J.G., and Wood, K. Optimised bit level systolic array for convolution F p632
McColl, J.D. Address as Chairman of the IEE Power Division: AC/DC: one man's view A p38
McDonnell, M., and Georganas, N.D. Combined mobile telephone and dispatch services in a cellular land-mobile radio system F p357
McDowell, D.M., Chandler, J.A., Hinch, L.W., Hughes, D.A., Rowe, P.W., and Wood, A.B. see Chandler, J.A.
McGeehan, J.P., and Bateman, A.J. see Bateman, A.J.
McGeehan, J.P., and Sladen, J.P.H. The performance of combined feedforward AGC and phase-locked AFC in a single sideband mobile radio receiver F p437
McIlroy, C.D., Linggard, R., and Monteith, W. Hardware for real-time image processing E p223
McLaren, P.G. IEEE summer power meeting C p362
McMahon, G.W., and Armstrong, B.A. see Armstrong, B.A.
McMurtrie, R., and Grant, P.M. see Grant, P.M.
McNeil, J.H., Case, S.H., Hayes, A.M., Morrison, R.E., and Riches, E.E. see Case, S.H.
McWhirter, J.G., McCanny, J.V., and Wood, K. see McCanny, J.V.
McWhirter, J.G., Pike, E.R., Bertero, M., and Mol, C.de see Pike, E.R.
McWhirter, J.G., Ward, C.R., Robson, A.J., and Hargrave, P.J. see Ward, C.R.
Meal, D.V., Anderson, R.B., Van Niekerk, H.R., and Kroninger, H. see Anderson, R.B.
Mears, R.J., de Fornel, F., and Ragdale, C.M. see de Fornel, F.
Medley, J.E. Consultancy for industrial projects A p423
Mellitt, B., Allan, J., and Pong, M.H. see Allan, J.
Mellitt, B., Mouneimne, Z.S., and Goodman, C.J. Simulation study of DC transit systems with inverting substations B p38
Merrifield, B.C., Roberts, J.B.G., Simpson, P., and Cross, J.F. see Roberts, J.B.G.
Mhango, L.M.C., and Creighton, G.K. Novel two-phase inverter-fed induction-motor drive B p99
Middleton, P.M., and Parish, A.R. see Parish, A.R.
van Mierlo, G.W.M., and Roefs, H.F.A. Relative performance of a simple MTI canceller selection rule F p433
Mikawa, T., Nakano, H., and Yamauchi, J. see Nakano, H.
Milford, D.J., and Willis, P.J. Quad encoded display E p70
Miller, A.R., Brown, R.M., and Vegh, E. New derivation for the rough-surface reflection coefficient and for the distribution of sea-wave elevations H p114
Miller, B.D., and Nguyen, D.T. see Nguyen, D.T.
Milner, J.G. Radar mortar locator development in the UK: the first 30 years F p233
Milutinović, V. Performance comparison of two suboptimum detection procedures in real environment F p341
Mišić, V.B., and Popovich, M.V. see Popovich, M.V.
Mitchell, H.B., and Wachtel, J.M. Generation of electron beams for gyrotron tubes I p177
Mitrakos, D.K., and Constantinides, A.G. Graph-theoretic approach to composite-source-model estimation for image coding F p71
Mitson, R.B. Review of high-speed sector-scanning sonar and its application to fisheries research F p257
Miyamoto, T., and Yasuura, K. Rigorous analysis of an embedded optical waveguide H p45
Mizoguchi, H., Suzuki, K., Shimokawara, N., Murayama, Y., and Yanabu, S. see Suzuki, K.
Moglestue, C. Influence of coupled plasmon-polar optical phonon modes on the mobility of electrons in GaAs I p188
Moglestue, C. Monte-Carlo particle model study of a microwave photodetector I p103
Moglestue, C. Monte-Carlo particle model study of the influence of gate metallisation and gate geometry on the AC characteristics of GaAs MESFETs I p193
Mohan Chandra, M., Sreenath, R.N., and Suryan, G. see Sreenath, R.N.
Mol, C.de, Pike, E.R., McWhirter, J.G., and Bertero, M. see Pike, E.R.
Monteith, W., McIlroy, C.D., and Linggard, R. see McIlroy, C.D.
Moody, S., Cooper, J.A., Dewhurst, R.J., and Palmer, S.B. see Cooper, J.A.
Moore, W.R., and Haynes, N.A. A review of synchronisation and matching in fault-tolerant systems E p119
Moreno, L., Serra, I., and Luque, E. see Serra, I.
Morgan, D.V., Heylen, A.E.D., and Guile, A.E. see Heylen, A.E.D.
Morimoto, S., Takeda, Y., and Hirasa, T. see Takeda, Y.
Morris, A.S. Simplified technique of model order reduction with performance verification by fast digital simulation D p69
Morris, G. Receiving analysis of the shaped cylindrical reflector antenna with an array feed H p123
Morris, R. Some practical considerations in the design of sandwich transducers and their arrays F p280
Morrison, R.E., Case, S.H., Hayes, A.M., McNeil, J.H., and Riches, E.E. see Case, S.H.
Morrison, R.E., and Clark, A.D. Probabilistic representation of harmonic currents in AC traction systems B p181
Moschytz, G.S., and Brugger, U.W. Signal-flow graph analysis of SC networks G p72
Mottier, P., Valette, S., Lizet, J., Jadot, J.P., Gidon, P., and Renard, S. see Valette, S.
Mouftah, H.T., and Garba, A.I. VLSI implementation of a 5-trit full adder G p214
Mouftah, H.T., and Ilyas, M. see Ilyas, M.
Mouneimne, Z.S., Mellitt, B., and Goodman, C.J. see Mellitt, B.
Mujahid, A., Zakzouk, A.K.M., and El-Shobokshy, M.S. see Zakzouk, A.K.M.
Mulawka, J.J., and Pakulak, A. Switched-capacitor implementations of phase-locked loops G p221
Muraleedharan, K.A., and Varadakumari, G. see Varadakumari, G.
Murayama, Y., Suzuki, K., Mizoguchi, H., Shimokawara, N., and Yanabu, S. see Suzuki, K.
Murdoch, G.B. Role of the consulting engineer in hydro and pumped storage systems A p383
Musha, T., Sekine, M., Tomita, Y., Hagisawa, T., Irabu, T., and Kiuchi, E. see Sekine, M

N

Naidu, D.S., and Kailasa Rao, A. see Kailasa Rao, A.
Nakagawa, T., and Fujisada, H. Method for evaluation of hysteretic interface properties and their application to anodised InSb MIS diodes I p51
Nakano, H., Iio, S., and Yamauchi, J. Frequency characteristics of tapered backfire helical antenna with loaded termination H p147
Nakano, H., Matsueda, H., and Tanaka, T.P. see Matsueda, H.
Nakano, H., Mikawa, T., and Yamauchi, J. Monofilar conical-helix antenna with low pitch angle H p379
Nakashima, S., and Akiya, M. see Akiya, M.
Nakwaski, W. Dynamical thermal properties of stripe-geometry laser diodes I p94
Nassibian, A.G., and Duong, A.K. see Duong, A.K.
Nelson of Stafford, Lord. Export competitiveness: a factor of management and/or design. (The first Lord Nelson of Stafford Lecture) (Lecture) A p626
Nengjing, L. Formulas for measuring radar ECCM capability F p417
Nešić, A., and Popović, B.D. see Popović, B.D.
Nettleton, M.A. Generation of blastwaves from confined electrical discharges A p96
Newman, I.A., Stallard, R.P., and Woodward, M.C. Combined resource-sharing algorithm E p55
Ng, T.S., and Magdy, M.A. Fast algorithm for optimal weight computation in linear array pattern synthesis having null constraints H p395
Nguyen, D.T., and Miller, B.D. State-space noise calculation for single-operational-amplifier *RC* filters G p114
Nicholson, H., and Fernando, K.V. see Fernando, K.V.
Nikiforuk, P.N., Hori, N., and Kanai, K. see Hori, N.
Nisbet, W.T., Hastings, W.I., and Helszajn, J. Microwave bandwidth of high-power ferrite devices biased between the main and subsidiary resonances H p276
Nixon, M., and Atkinson, P. see Atkinson, P.

O

O'Connor, B., Ainscough, J.A., and Rakowski, R. Teaching innovations in the special engineering programme at Brunel University A p697
O'Kelly, D. Voltage control for an HVDC convertor C p5
Odintsov, B.V., and Davies, A.C. Electrical network analogue for determining the optimal flows in multiterminal communication networks G p171
Ohm, G. 14/11 GHz, 120 Mbit/s regenerative satellite transponder F p442
Oka, H. New FM tachotelemeter using ferrite orthogonal cores A p601
Olcayto, E., and Lesz, T. Simple cyclic codes for burst errors F p153
Old, J.C. Multiple open-loop interference canceller for a rotating search radar F p203
Olver, A.D., Clarricoats, P.J.B., and Voglis, E.E. Study of dual-offset reflector antenna with dielectric cone feed H p69

Olver, A.D., Yang, K.K., and Clarricoats, P.J.B. Propagation and radiation behaviour of dual-depth corrugated horns H p179
Omotayo, O.R. Performance of Videotex-to-speech convertor A p328
Orawski, G., Adam, J.F., Bradbury, J., Charman, W.R., and Vanner, M.J. see Adam, J.F.
Ormondroyd, R.F., and Comley, V.E. Limits on the search rate of a pseudonoise sliding correlator synchroniser due to self-noise and decorrelation F p742
Ortiz, J.L., Lee, K.Y., and Park, Y.M. see Lee, K.Y.
Overall, C.D., Lamport, D.L., Woodhead, A.W., and Washington, D. see Lamport, D.L.
Overall, C.D., Woodhead, A.W., Washington, D., Mansell, J.R., Knapp, A.G., and Schagen, P. see Woodhead, A.W.
Owen, R.C., and Bowker, K.J. see Bowker, K.J.

P

Pakulak, A., and Mulawka, J.J. see Mulawka, J.J.
Palanichamy, S., and Chinnasamy, P. Semiconductor fault-current limiters Pt. 1: Problems connected with and possible schemes for implementing short-circuit current limitation in power systems C p94
Palanichamy, S., and Chinnasamy, P. Semiconductor fault-current limiters Pt. 2: Investigations on a semiconductor-diode fault-current limiter for use in power systems C p98
Palanichamy, S., and Chinnasamy, P. Semiconductor fault-current limiters Pt. 3: Investigations on microprocessor-based thyristor fault-current limiter for use in power systems C p103
Palmer, R.F., and Dix, J.F. see Dix, J.F.
Palmer, S.B., Cooper, J.A., Dewhurst, R.J., and Moody, S. see Cooper, J.A.
Pandharipande, V.M., Das, B.N., and Deshmukh, P.S. see Das, B.N.
Paraskevopoulos, P.N. Analysis of singular systems using orthogonal functions D p37
Parini, C.G., Clarricoats, P.J.B., and Tun, S.M. see Clarricoats, P.J.B.
Parish, A.R., and Middleton, P.M. The consultant's role in project management A p420
Park, Y.M., Lee, K.Y., and Ortiz, J.L. see Lee, K.Y.
Parker, S.R., Kayran, A.H., and Lim, Y.C. see Kayran, A.H.
Parkman, N. Scientific consultancy A p355
Patecki, A., and Szymański, G. see Szymański, G.
Paul, W., and Groves, S.H. see Groves, S.H.
Pavlović, V.D. Direct synthesis of filter transfer functions G p156
Payán-Somet, J., Acha, J.I., and Civit, A. see Acha, J.I.
Pearson, D.E., and Whybray, M.W. Transform coding of images using interleaved blocks F p466
Penard, E., and Daniel, J.P. Open and hybrid microstrip antennas H p38
Penman, J., and Fraser, J.R. Unified approach to problems in electromagnetism A p55
Pennington, J., Hodgkiss, W., and Turner, L.F. see Hodgkiss, W.
Peraino, J., Chandler, J.A., Hinch, L.W., Fair, R.I., Hughes, D.A., and Rowe, P.W. see Chandler, J.A.
Pereira, J.F.R., Anderson, A.P., and Bennett, J.C. New procedure for near-field measurements of microwave antennas without anechoic environments H p351
Perez-Verdu, B., Huertas, J.L., and Rodriguez-Vazquez, A. see Huertas, J.L.
Petrie, P., Reekie, H.M., Mavor, J., Denyer, P.B., and Lau, C.H. see Reekie, H.M.
Pic, E., and Tedjini, S. see Tedjini, S.
Pietrzak-David, M., de Fornel, B., Bach, J.L., and Hapiot, J.C. see de Fornel, B.
Pike, E.R., McWhirter, J.G., Bertero, M., and Mol, C.de Generalised information theory for inverse problems in signal processing F p660
Pillai, K.P.P., and Varadakumari, G. see Varadakumari, G.
Piskarev, V.A., Filanovsky, I.M., and Stromsmoe, K.A. see Filanovsky, I.M.
Platte, W. Cutoff-taper performance of substrate-edge excited optoelectronic switches I p45
Platte, W. Visual indication of locally varying photoconductivity I p77
Pleasants, S., DeVore, R.V., and Caldecott, R. see DeVore, R.V.
Plumb, I.C., Cook, D.C., and Haydon, S.C. Laboratory investigations of pulsed RF plasmas relevant to CW arc pluming at high-power aerials. Pt. 1: Critical breakdown under pulsed RF conditions A p145
Poelman, A.J., and Guy, J.R.F. Multinotch logic-product polarisation suppression filters. A typical design example and its performance in a rain clutter environment F p383
Poelman, A.J., and Guy, J.R.F. Nonlinear polarisation-vector translation in radar systems. A promising concept for real-time polarisation-vector signal processing via a single-notch polarisation suppression filter F p451
Poh, B.S. Experimental investigation of selfsustained oscillations in stripe-geometry DH lasers I p21
Poh, B.S. Refractive index to gain derivative ratio in GaAs/GaAlAs semiconductor injection lasers I p163
Pong, M.H., Allan, J., and Mellitt, B. see Allan, J.
Pontoppidan, K., and Albertsen, N.C. see Albertsen, N.C.
Pook, R., Knapp, A.G., Washington, D., Guest, A.J., Gill, R.W.A., and Francis, L.H. see Knapp, A.G.
Popović, B.D., and Nelić, A. Generalisation of the concept of equivalent radius of thin cylindrical antennas H p153
Popovich, M.V., and Milić, V.B. Comparison of GIC-based active-*RC* allpass biquads G p209
de Pourcq, M. New power-density calculation method by three-dimensional finite elements H p411
Prentice, J.W., and Dellow, F. see Dellow, F.
Prescott, A.J., Bolton, B., and France, J.T. see Bolton, B.
Preston, R.C., and Livett, A.J. Medical ultrasonic standards at NPL A p233
Probert, P.J., Luff, G.F., and Carroll, J.E. see Luff, G.F.
Proudfoot, J.T., Dagless, E.L., and Edwards, M.D. see Dagless, E.L.
Psomadellis, F., and Lidgate, D. Microcomputer calculation of fault levels for operational interlocking C p107
Pu, F.W., and Tso, S.K. see Tso, S.K.
Pues, H., and Van de Capelle, A. Accurate transmission-line model for the rectangular microstrip antenna H p334
Pujara, L.R., and Rattan, K.S. Model reduction of linear multivariable control systems via frequency matching D p243
Pung, H.K., and Davies, P.A. Fibre-optic local-area network with arbitrary topology H p77
Punjani, M., Bond, L.J., and Saffari, N. see Bond, L.J.

Q

Qadeer, A., and Bryant, F.J. see Bryant, F.J.
Quarmby, D.J., and Holmes, J.N. Implementation of a parallel-formant speech synthesiser using a single-chip programmable signal processor F p563

R

Rabinovici, R., Krichevsky, M., and Sharir, B. see Krichevsky, M.
Ragdale, C.M., de Fornel, F., and Mears, R.J. see de Fornel, F.
Rajagopalan, P.K., and Das, S.K. see Das, S.K.
Rajaiah, K., and Seshadri, T.K. see Seshadri, T.K.
Rajanathan, C.B., Lowther, D.A., and Freeman, E.M. -Finite-element analysis of the Xi-core levitator A p62
Rajaraman, K.C. Design of phase change 2-speed windings for induction motors, using pole-amplitude modulation techniques B d232
Rakowski, R., O'Connor, B., and Ainscough, J.A. see O'Connor, B.
Ramachandra, K.V. Position, velocity and acceleration estimates from the noisy radar measurements F p167
Ramachandran, V., Ahmad, M.O., and Ahmadi, M. see Ahmad, M.O.
Ramachandran, V., Ananda Mohan, P.V., and Swamy, M.N.S. see Ananda Mohan, P.V.
Ramachandran, V., and Ahmadi, M. see Ahmadi, M.
Ramamurthy, V., Bhat, K.N., and Kakati, D. Computer-aided thermal analysis of reverse-biased PIN diodes I p82
Rao, K.Sudhakar, Kildal, P.-S., and Jakobsen, K. see Kildal, P.-S.
Rao, Y.N., and Gopal, S. see Gopal, S.
Rathore, T.S. Theorems on power, mean and RMS values of uniformly sampled periodic signals A p598
Rattan, K.S., and Pujara, L.R. see Pujara, L.R.
Raut, R., and Bhattacharyya, B.B. Designs of parasitic tolerant switched-capacitor filters using unity-gain buffers G p103
Raveendra, K.R., and Srinivasan, R. Threshold detection of CPFSK in non-Gaussian noise F p397
Ray, G., and Mahalanabis, A.K. see Mahalanabis, A.K.
Ray, P.K., and Sen, K.K. see Sen, K.K.
Ray, S.K. Zero-crossing-based approximate demodulation of wide-deviation FM F p47
Ray, W.F., Chappell, P.H., and Blake, R.J. see Chappell, P.H.
Ray, W.F., Davis, R.M., Lawrenson, P.J., Stephenson, J.M., Fulton, N.N., and Blake, R.J. Switched reluctance motor drives for rail traction: a second view B p220 B d263
Rayner, P.J.W., and Zhang, Y.Z. see Zhang, Y.Z.
Read, P.W., and Barr, D.M. 400 kV transmission system, aspects and problems C p292
Reed, I.S., and Truong, T.K. New syndrome decoding techniques for the (n, k) convolutional codes F p412
Reed, K.B., and Battersby, G.A. see Battersby, G.A.
Reekie, H.M., Petrie, P., Mavor, J., Denyer, P.B., and Lau, C.H. Design and implementation of digital wave filters using universal adaptor structures F p615
Renard, S., Valette, S., Lizet, J., Mottier, P., Jadot, J.P., and Gidon, P. see Valette, S.
Riches, E.E., Case, S.H., Hayes, A.M., McNeil, J.H., and Morrison, R.E. see Case, S.H.
Ripoll, A., and Luque, E. see Luque, E.
Riris, A. New direct regenerator for 16-ary QAM signalling F p407
Riris, A. QPSK-direct-phase regenerator with imperfect reference carrier F p15
Ritchie, W.M., Bickford, J.P., Doone, R.M., Savic, M.S., Shami, T.A., and Smith, C.T. see Bickford, J.P.
Rózsa, P., Lastman, G.J., and Sinha, N.K. see Lastman, G.J.
Roberts, J.B.G. Design and application of digital signal processors (Editorial) F p561
Roberts, J.B.G., Simpson, P., Merrifield, B.C., and Cross, J.F. Signal processing applications of a distributed array processor F p603
Roberts, J.B.G., Ward, J.S., Barton, F., and Stanier, B.J. see Ward, J.S.
Roberts, J.H., and Gardner, F. Data transmission over UHF fading mobile radio channels F d767
Roberts, M.W., and Lala, P.K. An algorithm for the partitioning of logic circuits E p113
Robertson, J.M., and Jack, M.A. see Jack, M.A.
Robinson, P., and Kormilo, S. see Kormilo, S.
Robson, A.J., Ward, C.R., Hargrave, P.J., and McWhirter, J.G. see Ward, C.R.
Roddy, D.J., Irwin, G.W., and Wilson, H. Optimal controllers for bank-to-turn CLOS guidance D p109
Rodriguez-Vazquez, A., Huertas, J.L., and Perez-Verdu, B. see Huertas, J.L.
Roefs, H.F.A., and van Mierlo, G.W.M. see van Mierlo, G.W.M.
Rogers, D.V., and Allnutt, J.E. Evaluation of a site diversity model for satellite communications systems F p501
de Roos, A., Gough, P.T., and Cusdin, M.J. see Gough, P.T.
Rothman, M., and Suddards, A.D. Numerical and CAD techniques applied to overhead equipment for electric railways B p170
Rousseau, M., and Excell, P.S. Optically coupled probe for microwave near-field measurements A p74
Rowe, P.W., Chandler, J.A., Hinch, L.W., Fair, R.I., Hughes, D.A., and Peraino, J. see Chandler, J.A.
Rowe, P.W., Chandler, J.A., Hinch, L.W., Hughes, D.A., McDowell, D.M., and Wood, A.B. see Chandler, J.A.
Ruiter, J.P., and Thus, A.W. Cooling of oil-filled cable joints using heat pipes C p340
Rutkowski, J. Heuristic network partitioning algorithm using the concept of loop index G p203
Rutter, M.J., and Grant, P.M. see Grant, P.M.

S

Saad, A., and Argaman, G. see Argaman, G.
Saffari, N., Bond, L.J., and Punjani, M. see Bond, L.J.
Sahba, M., and Mayne, D.Q. Computer-aided design of nonlinear controllers for torque controlled robot arms D p8
Saleh, A.M., and Chalmers, B.J. see Chalmers, B.J.
Saleh, R.A., and Hinton, O.R. see Hinton, O.R.
Salerno, M., Cristina, S., and D'Amore, M. see Cristina, S.
Sali, S., Benson, F.A., and Sitch, J.E. Coupling in a dielectric-coated multicoaxial-cable system. An analysis based on a quasi-TEM model A p67
Sandoz, D.J. CAD for the design and evaluation of industrial control systems D p125
Santiago, J., Au, S., and Smy, P.R. see Au, S.
Saramäki, T. Computationally efficient circularly symmetric two-dimensional FIR filters G p46
Sarma, V.V.S., and Dattatreya, G.R. see Dattatreya, G.R.
Sarwate, D.V. Mean-square correlation of shift-register sequences F p101
Sathiakumar, S., Gopakumar, K., Biswas, S.K., and Vithayathil, J. see Gopakumar, K.
Satya Prakash, A.L., Leong, M.S., and Kooi, P.S. see Leong, M.S.
Saunders, D.W., and Hampshire, M.J. Teaching company scheme: a unique style of postgraduate activity with industry A p728
Savic, M.S., Bickford, J.P., Doone, R.M., Ritchie, W.M., Shami, T.A., and Smith, C.T. see Bickford, J.P.
Savic, M.S., and Bickford, J.P. see Bickford, J.P.
Schagen, P., Woodhead, A.W., Washington, D., Mansell, J.R., Overall, C.D., and Knapp, A.G. see Woodhead, A.W.
Scheggi, A.M., Brenci, M., Conforti, G., and Falciai, R. Optical-fibre thermometer for medical use H p270
Schilling, H.W., and Collin, R.E. see Collin, R.E.
Schilling, H.W., and Collin, R.E. Circular waveguide bifurcation for asymmetric modes H p397

Schlapp, W., Zhang, X., Freyer, J., and Weimann, G. see Zhang, X.
Seagar, A.D., Yeo, T.S., and Bates, R.H.T. Full-wave computed tomography. Pt. 2: Resolution limits **A** p616
Sears, J.L. EMIS: a new kind of database **I** p38
See, P.J., and Forse, N.J.A. Measurement of signal to quantising-noise ratio in ADPCM systems and its implications for echo cancellation **F** p219
Sekine, M., Musha, T., Tomita, Y., Hagisawa, T., Irabu, T., and Kiuchi, E. Weibull-distributed weather clutter in the frequency domain **F** p549
Sen, K.K., and Ray, P.K. Energy partitioning in an inductively driven rail gun **A** p140
de la Sen, M. Online optimisation of the free parameters in discrete adaptive control systems **D** p146 **D** e228
Serbest, A.H. Diffraction coefficients for a curved edge with soft and hard boundary conditions **H** p383
Serra, I., Moreno, L., and Luque, E. Time-optimal control algorithm for microprocessor with asymmetrical bounds **D** p238
Seshadri, T.K., and Rajaiah, K. Eigenfunction solution of a class of TEM transmission line **H** p279 **H** e289
Shaar, A.A., Woodcock, C.F., and Davies, P.A. Number of one-coincidence sequence sets for frequency-hopping multiple access communication systems **F** p725
Shaar, A.A., and Davies, P.A. A survey of one-coincidence sequences for frequency-hopped spread-spectrum systems **F** p719
Shafai, L., Ittipiboon, A., Bridges, E., and Hyjazie, F. Dualband horn with inherent isolation between its transmit and receive ports **H** p143
Shalev, E., and Koren, I. see Koren, I.
Shami, T.A., Bickford, J.P., Doone, R.M., Ritchie, W.M., Savic, M.S., and Smith, C.T. see Bickford, J.P.
Sharir, B., Krichevsky, M., and Rabinovici, R. see Krichevsky, M.
Shieh, L.S., Tsay, Y.T., and Wang, C.T. Matrix sector functions and their applications to systems theory **D** p171
Shieh, L.S., and Tsay, Y.T. Algebra-geometric approach for the model reduction of large-scale multivariable systems **D** p23
Shih, Y.-P., Hwang, C., and Guo, T.-Y. see Hwang, C.
Shimokawara, N., Suzuki, K., Mizoguchi, H., Murayama, Y., and Yanabu, S. see Suzuki, K.
Shuley, N.V. Higher-order mode interaction in planar periodic structures **H** p129
Silson, P.M., and White, B.A. see White, B.A.
Silveira, H.M., and Doraiswami, R. New structure for an adaptive servomechanism controller **D** p64
Silver, D.M., and Johnson, D.A.H. Facsimile coding using symbol-matching techniques **F** p125
Simpson, P., Roberts, J.B.G., Merrifield, B.C., and Cross, J.F. see Roberts, J.B.G.
Singer, S. Power conversion and control with zero AC current harmonics by means of a time-variable transformer **G** p147
Singh, J., Armenise, M.N., Canali, C., De Sario, M., Franzosi, P., Hutchins, R.H., and De La Rue, R.M. see Armenise, M.N.
Singh, K., and Ayoub, F. see Ayoub, F.
Singhal, K., and Jain, N.K. see Jain, N.K.
Sinha, N.K., Lastman, G.J., and Rózsa, P. see Lastman, G.J.
Sirisena, H.R., and Brown, E.P.M. see Brown, E.P.M.
Sitch, J.E., Sali, S., and Benson, F.A. see Sali, S.
Siu, W.-C., and Constantinides, A.G. Approach to the hardware implementation of digital signal processors using Mersenne number transforms **E** p10
Siu, W.-C., and Constantinides, A.G. On the computation of discrete Fourier transform using Fermat number transform **F** p7
Siu, W.C., and Constantinides, A.G. Cyclic convolution of long sequences using number theoretic transform **G** p119
Skaug, R. Experiment with spread spectrum modulation on an HF channel **F** p87
Skilling, J., and Gull, S.F. see Gull, S.F.
Sladen, J.P.H., and McGeehan, J.P. see McGeehan, J.P.
Smith, B., and Creasey, D. see Creasey, D.
Smith, B.V., and Gazey, B.K. High-frequency sonar transducers: a review of current practice **F** p285
Smith, C.T., Bickford, J.P., Doone, R.M., Ritchie, W.M., Savic, M.S., and Shami, T.A. see Bickford, J.P.
Smith, D., Bell, W.R., and Auchterlonie, L.J. Microwave cavity of improved design for gas breakdown studies and its application to helium-oxygen mixtures **H** p235
Smith, J.R., and Bell, W.W. Selection of transmission circuit models for power-system transient studies **C** p1
Smith, M.S., Hoque, M., and Davies, D.E.N. see Hoque, M.
Smith, M.S., and Diaz, L.M. see Diaz, L.M.
Smy, P.R., Au, S., and Santiago, J. see Au, S.
Snijders, A.L., Groeneveld, G.J., Koopmans, G., and Vermeer, J. see Groeneveld, G.J.
Sodin, L.G. Mutual coupling compensation for small, circularly symmetric planar antenna arrays **H** d426
Somers, M.L., and Stubbs, A.R. Sidescan sonar **F** p243
Spanyol, J.L., and Bolton, B. see Bolton, B.
Sphicopoulos, T., Bernier, L.-G., and Gardiol, F. Theoretical basis for the design of the radially stratified dielectric-loaded cavities used in miniaturised atomic frequency standards **H** p94
Sreenath, R.N., Mohan Chandra, M., and Suryan, G. Etch-induced MOS guard-ring-protected Schottky-barrier diodes **I** p63
Srinivasan, R., and Raveendra, K.R. see Raveendra, K.R.
Stallard, R.P., Newman, I.A., and Woodward, M.C. see Newman, I.A.
Stanier, B.J., Ward, J.S., Barton, P., and Roberts, J.B.G. see Ward, J.S.
Stephen, K.D. The video-taped course revolution **A** p739
Stephenson, B.K., Buxton, B.F., and Buxton, H. see Buxton, B.F.
Stephenson, J.M., Ray, W.F., Davis, R.M., Lawrenson, P.J., Fulton, N.N., and Blake, R.J. see Ray, W.F.
Sterling, M.J.H., and Bargiela, A. Minimum norm state estimation for computer control of water distribution systems **D** p57
Stevenson, J.K. Design procedure for high-stability four-crystal single-sideband lattice filters with equiripple or maximally flat passbands and double attenuation poles at finite frequencies **G** p37
Stewart, D.R. A small company's approach to designing for profit **A** p623
Stone, H.D., Mansell, J.R., Woodhead, A.W., and Knapp, A.G. see Mansell, J.R.
Stones, W.F. Recent history of electricity supply in Hong Kong (Lecture) **C** p219
Strecker, T.E., and Bruton, L.T. see Bruton, L.T.
Stromsmoe, K.A., Filanovsky, I.M., and Piskarev, V.A. see Filanovsky, I.M.
Stubbs, A.R., and Somers, M.L. see Somers, M.L.
Studer, F.A., and Farina, A. see Farina, A.
Suddards, A.D., and Rothman, M. see Rothman, M.
Sun, H.J., Gutmann, R.J., and Borrego, J.M. DC and pulse-light illuminated optical responses of microwave GaAs-MESFET oscillators **I** p31
Sundberg, C.E., and Svensson, A. see Svensson, A.
Suryan, G., Sreenath, R.N., and Mohan Chandra, M. see Sreenath, R.N.
Suzuki, K., Mizoguchi, H., Shimokawara, N., Murayama, Y., and Yanabu, S. Current interruption by disconnecting switch and earthing switch in GIS **C** p54
Svensson, A., and Sundberg, C.E. Optimum MSK-type receivers for CPM on Gaussian and Rayleigh fading channels **F** p480
Swamy, M.N.S., Ananda Mohan, P.V., and Ramachandran, V. see Ananda Mohan, P.V.
Swanick, B.H., Williams, D., and Yousefpour, P. see Williams, D.
Swift-Hook, D.T. Address as Chairman of the IEE Science, Education & Technology Division: Looking for alternatives **A** p44
Szymański, G., and Patecki, A. Eddy-current losses in three-phase power cable and pipe-sheathing systems **I** p125

T

Tai, L.C., and Chen, C.F. Overflow detection in a redundant residue number system **E** p97
Takawira, F., and Ingram, D.G.W. Derivation of impulse responses under minimum phase constraints **F** p425
Takeda, E. Hot-carrier effects in submicrometre MOS VLSIs **I** p153
Takeda, Y., Morimoto, S., and Hirasa, T. Generalised analysis for steady-state characteristics of DC commutatorless motors **B** e14
Tanaka, K., Fukushima, T., Ueno, K., and Fukumoto, T. see Fukushima, T.
Tanaka, T.P., Matsueda, H., and Nakano, H. see Matsueda, H.
Taylor, N.B. Method of storing route guidance information using quadtrees **E** p137
Taylor, R. Signal processing with occam and the transputer **F** p610
Tedjini, S., and Pic, E. Investigation of nonreciprocal fin-line devices **H** p61
Temerinac, M.R., and Marinčić, A.S. Phase modulator with low nonlinear distortion **G** p161
Tennant, D.M., Bösch, M.A., Chin, G.M., Herbst, D., Grogan, J.K., Lemons, R.A., and Tewksbury, S.K. see Bösch, M.A.
Terplan, S., and Lawson, S.S. see Lawson, S.S.
Tewksbury, S.K., Bösch, M.A., Chin, G.M., Herbst, D., Grogan, J.K., Lemons, R.A., and Tennant, D.M. see Bösch, M.A.
Therapos, C.P. Low-order modelling via discrete stability equations **D** p248
Thng, H., Kooi, P.S., and Leong, M.S. see Kooi, P.S.
Thus, A.W., and Ruiter, J.P. see Ruiter, J.P.
Tischer, F.J., and Benson, F.A. see Benson, F.A.
Titchener, M.R. Digital encoding by means of new T-codes to provide improved data synchronisation and message integrity **E** p151
Titmuss, G., Higgins, M., and Martyn, R. see Higgins, M.
Tomita, Y., Sekine, M., Musha, T., Hagisawa, T., Irabu, T., and Kiuchi, E. see Sekine, M.
Torelli, F., Brucoli, M., and Trovato, M. see Brucoli, M.
Trayner, B.T., Barlow, A.J., and Dye, M.S. see Barlow, A.J.
Tredgold, R.H., Winter, C.S., Hodge, P., and Khoshdel, E. see Winter, C.S.
Tripathy, S.C., Kanniah, J., Malik, O.P., and Hope, G.S. see Kanniah, J.
Trovato, M., Brucoli, M., and Torelli, F. see Brucoli, M.
Truong, T.K., and Reed, I.S. see Reed, I.S.
Tsang, C.M., Li, H.F., and Cheung, Y.S. see Li, H.F.
Tsay, Y.T., Shieh, L.S., and Wang, C.T. see Shieh, L.S.
Tsay, Y.T., and Shieh, L.S. see Shieh, L.S.
Tsividis, Y., and Banu, M. see Banu, M.
Tso, S.K., and Pu, F.W. Software realisation of synchronisation and firing control of thyristor convertors **B** p141
Tuft, G., and Wilson, J. see Wilson, J.
Tun, S.M., Clarricoats, P.J.B., and Brown, R.C. see Clarricoats, P.J.B.
Tun, S.M., Clarricoats, P.J.B., and Parini, C.G. see Clarricoats, P.J.B.
Turner, L.F., Frangoulis, E.D., and Yoshida, K. see Frangoulis, E.D.
Turner, L.F., Hodgkiss, W., and Pennington, J. see Hodgkiss, W.

U

Ueno, K., Fukushima, T., Fukumoto, T., and Tanaka, K. see Fukushima, T.
Umeda, Y., Fujino, T., and Yamazaki, E. see Fujino, T.
Urquhart, R.B., and Wood, D. Systolic matrix and vector multiplication methods for signal processing **F** p623

V

Valette, S., Lizet, J., Mottier, P., Jadot, J.P., Gidon, P., and Renard, S. Integrated-optical circuits achieved by planar technology on silicon substrates: application to the optical spectrum analyser **H** p325
Valsamis, D., and Gray, J.O. see Gray, J.O.
Van Niekerk, H.R., Anderson, R.B., Kroninger, H., and Meal, D.V. see Anderson, R.B.
Van Roey, J., Denturck, B., and Lagasse, P.E. Guided wave coupling in integrated-optic gratings: normal incidence **H** p282
Van de Capelle, A., and Pues, H. see Pues, H.
Vandenput, A., Belmans, R., Heylen, W., and Geysen, W. see Belmans, R.
Vanner, M.J., Adam, J.F., Bradbury, J., Charman, W.R., and Orawski, G. see Adam, J.F.
Varadakumari, G., and Muraleedharan, K.A. Viscous torque of disc-type magnetic fluid slip clutches **A** p584
Varadakumari, G., and Pillai, K.P.P. Rheological behaviour of iron-silicone fluid mixtures used in magnetic slip clutches **A** p591
Vegh, E., Miller, A.R., and Brown, R.M. see Miller, A.R.
Vermeer, J., Groeneveld, G.J., Snijders, A.L., and Koopmans, G. see Groeneveld, G.J.
Vithayathil, J., Gopakumar, K., Sathiakumar, S., and Biswas, S.K. see Gopakumar, K.
Voglis, E.E., Olver, A.D., and Clarricoats, P.J.B. see Olver, A.D.
Vovos, N., Galanos, G., and Giannakopoulos, G. see Galanos, G.
Vu, T.B. Method of null steering without using phase shifters **H** p242
Vučetić, B., and Drajić, D. see Drajić, D.

W

Wachtel, J.M., and Mitchell, H.B. see Mitchell, H.B.
Wadham, D.W. Modular design of sonar systems using functional units built from a standard set of VLSI building blocks **F** p334
Wahsh, S. Steady-state performance of PWM inverter drives **B** d231
Walker, L., and Cory, B.J. Four year Dainton course in electrical engineering at Imperial College **A** p703
Wang, C.T., Shieh, L.S., and Tsay, Y.T. see Shieh, L.S.
Wang, W.J., and Chen, B.S. see Chen, B.S.
Ward, C.R., Robson, A.J., Hargrave, P.J., and McWhirter, J.G. Application of a systolic array to adaptive beamforming **F** p638
Ward, J.S., Barton, P., Roberts, J.B.G., and Stanier, B.J. Figures of merit for VLSI implementations of digital signal processing algorithms **F** p64
Warren, R.H.J., and Williams, A. see Williams, A.
Warwick, K. A new approach to reduced-order modelling **D** p74

Washington, D., Knapp, A.G., Guest, A.J., Gill, R.W.A., Pook, R., and Francis, L.H. see Knapp, A.G.
Washington, D., Lamport, D.L., Woodhead, A.W., and Overall, C.D. see Lamport, D.L.
Washington, D., Woodhead, A.W., Mansell, J.R., Overall, C.D., Knapp, A.G., and Schagen, P. see Woodhead, A.W.
Weaver, L.J. Management consultants and technology **A** p365
Weimann, G., Zhang, X., Freyer, J., and Schlapp, W. see Zhang, X.
Wells, P.N.T. Medical ultrasonics **A** p225
Werner, W., and Kreutzer, H.W. see Kreutzer, H.W.
West, C.L., Lewis, M.F., Deacon, J.M., and Humphryes, R.F. see Lewis, M.F.
Westbrook, M.H. Address as Chairman of the IEE Computing & Control Division: The human body and its transducers: a real-time real-life computing and control system **A** p10
Westcott, B.S., Graham, R.K., and Brickell, F. Systematic design of a dual offset reflector antenna with an elliptical aperture **H** p365
Westcott, B.S., and Brickell, F. -Geometric-optic synthesis of single-reflector antennas with distributed sources **H** p9
Wheeler, C.B. Space-charge-limited electron current flow between coaxial cylinders and concentric spheres with ion production at an intermediate radius **A** p325
Wheeler, J.C.G., and Bradwell, A. see Bradwell, A.
White, B.A., and Silson, P.M. Reachability in variable structure control systems **D** p85
White, I.H., and Carroll, J.E. Optical bistability in twin-stripe lasers **H** p309
White, J.C.F., and Henderson, C. see Henderson, C.
Whybray, M.W., and Pearson, D.E. see Pearson, D.E.
Wiak, S. Method of calculation of the transient electromagnetic field in ferromagnetic materials for the known vector of induction *B* on the surface **A** p293 **A** e622
Wickenden, J.T., Curtis, T.E., and Constantinides, A.G. see Curtis, T.E.
Wickramasinghe, H.K. Acoustic microscopy: present and future **A** p282
Wilkes, M.V. Past, present and future of the computer field (Lecture) **E** p106
Wilkinson, J.S., and Wilson, M.G.F. Design and performance of a low crosstalk directional coupler switch **H** p304 **H** e410
Williams, A., and Warren, R.H.J. Method of using data from computer simulations to test protection equipment **C** p349
Williams, B.W. Current-impulse-displacement thyristor commutation with controlled trapped energy **B** p21
Williams, B.W. High-voltage high-frequency power-switching transistor module with switching-aid-circuit energy recovery **B** p7
Williams, D., Yousefpour, P., and Swanick, B.H. Online adaptive control of a fermentation process **D** p117
Williams, P.D.L. Inexpensive multipurpose airborne surveillance radar **F** p507
Willis, P.J., and Milford, D.J. see Milford, D.J.
Wilson, H., Roddy, D.J., and Irwin, G.W. see Roddy, D.J.
Wilson, J., and Tuft, G. Design of the electrical power system **C** p275
Wilson, M.G.F., and Wilkinson, J.S. see Wilkinson, J.S.
Winter, C.S., Tredgold, R.H., Hodge, P., and Khoshdel, E. Dependence of the Schottky barrier height of GaP/polymer/Au diodes on the area per carboxylic acid group **I** p125
Wong, F.S., and Ito, M.R. Design and evaluation of the event-driven computer **B** p209
Wong, J.W., Yu, W., and Majithia, J.C. see Yu, W.
Wong, P.F., and Lee, K.F. see Lee, K.F.
Wong, T.M., and Binns, K.J. see Binns, K.J.
Wood, A.B., Chandler, J.A., Hinch, L.W., Hughes, D.A., McDowell, D.M., and Rowe, P.W. see Chandler, J.A.
Wood, D., and Urquhart, R.B. see Urquhart, R.B.
Wood, K., McCanny, J.V., and McWhirter, J.G. see McCanny, J.V.
Woodcock, C.F., Shaar, A.A., and Davies, P.A. see Shaar, A.A.
Woodhead, A.W., Lamport, D.L., Washington, D., and Overall, C.D. see Lamport, D.L.
Woodhead, A.W., Mansell, J.R., Knapp, A.G., and Stone, H.D. see Mansell, J.R.
Woodhead, A.W., Washington, D., Mansell, J.R., Overall, C.D., Knapp, A.G., and Schagen, P. Channel multiplier CRT **I** p2
Woods, D. Calibration of a precision three-port coaxial junction: a new component for immittance standardisation **A** p302
Woods, D., and Granville-George, D.A. see Granville-George, D.A.
Woodward, J.L., Elder, J.M., and Boys, J.T. see Elder, J.M.
Woodward, M.C., Newman, I.A., and Stallard, R.P. see Newman, I.A.
Wright, G.T., and Frangos, P.P. Simple analytical one-dimensional model for saturation operation of the high-voltage bipolar power transistor **I** p207
Wu, B., and Mavor, J. Distortion in CMOS operational amplifier circuits **I** p129
Wu, L.J., Wu, Y.S., Constantinides, A.G., and Curtis, T.E. see Wu, Y.S.
Wu, Y.S., Constantinides, A.G., Curtis, T.E., and Wu, L.J. Architectural approach to alternate low-level primitive structures (ALPS) for acoustic signal processing **F** p327
Wylde, R.J. Millimetre-wave Gaussian beam-mode optics and corrugated feed horns **H** p258

X

Xianya, X., and Evans, R.J. Adaptive control of discrete-time time-varying systems with unknown deterministic disturbances **D** p81
Xydeas, C.S., and Yeoh, F.S. see Yeoh, F.S.

Y

Yamauchi, J., Nakano, H., and Iio, S. see Nakano, H.
Yamauchi, J., Nakano, H., and Mikawa, T. see Nakano, H.
Yamazaki, E., Fujino, T., and Umeda, Y. see Fujino, T.
Yanabu, S., Suzuki, K., Mizoguchi, H., Shimokawara, N., and Murayama, Y. see Suzuki, K.
Yang, K.K., Olver, A.D., and Clarricoats, P.J.B. see Olver, A.D.
Yasuura, K., and Miyamoto, T. see Miyamoto, T.
Yeo, T.S., Seagar, A.D., and Bates, R.H.T. see Seagar, A.D.
Yeoh, F.S., and Xydeas, C.S. Transform approach to split-band coding schemes **F** p57
Yeung, L.F., and Bryant, G.F. Robust stability of diagonally dominant systems **D** p253
Yoshida, K., Frangoulis, E.D., and Turner, L.F. see Frangoulis, E.D.
Yousefpour, P., Williams, D., and Swanick, B.H. see Williams, D.
Yu, W., Majithia, J.C., and Wong, J.W. Distributed routing algorithm for a circuit/packet switching network **F** p751
Yung, E.K., and Butler, C.M. Coaxial-line driven monopole on an electrically thick conducting cylinder over a ground plane **H** p54
Yung, H.C., and Allen, C.R. Part 1: VLSI implementation of an optimised hierarchical multiplier **G** p56
Yung, H.C., and Allen, C.R. Part 2. An optimising analysis of hierarchical multipliers for VLSI **G** p61

Z

Zaki, M., and Elboraey, F. Processing of inverted files in magnetic-bubble memories **C** p76
Zakzouk, A.K.M. On the dust-equivalent series resistance of a photovoltaic concentrator **I** p17
Zakzouk, A.K.M., Mujahid, A., and El-Shobokshy, M.S. Performance evaluation of photovoltaic silicon cells under concentrated sunlight **I** p66
Zeheb, E., Hertz, D., and Jury, E.I. see Hertz, D.
Zhang, X., Freyer, J., Weimann, G., and Schlapp, W. MBE GaAs Impatt diodes with reduced drift region for mm-wave frequencies **I** p203
Zhang, Y.S., and Cutteridge, O.P.D. see Cutteridge, O.P.D.
Zhang, Y.Z., and Rayner, P.J.W. Minimisation of Reed-Muller polynomials with fixed polarity **E** p177
Zhu, Z.C., Clark, A.P., and Joshi, J.K. see Clark, A.P.

Addresses

Burbridge, R.N.G. Address as Chairman of the IEE Management & Design Division: Some art, some science and a lot of feedback **A** p24
Foxell, C.A.P. Address as Chairman of the IEE Electronics Division: The business of VLSI **A** p17
John, M.N. Address as IEE President: Electricity supply—problems and possibilities **A** p1
Lidgate, D. Adddress as Chairman of the IEE NW Centre, Supply Section: Computers in power systems **C** p113
McColl, J.D. Address as Chairman of the IEE Power Division: AC/DC: one man's view **A** p38
Swift-Hook, D.T. Address as Chairman of the IEE Science, Education & Technology Division: Looking for alternatives **A** p44
Westbrook, M.H. Address as Chairman of the IEE Computing & Control Division: The human body and its transducers: a real-time real-life computing and control system **A** p10

Guide to subject index

Acoustics (*See* Acoustoelectric effects and sound broadcasting and audio)
Acoustoelectric effects
Active networks
Actuators (*See* Transducers)
Adaptive control
Algebra (incl. matrix algebra) (*See* Mathematical techniques)
Algorithms (*See* Mathematical techniques)
Amplifiers
Analogue computers and computation
Analogue-digital conversion
Antennas
Arcing
Attenuators (*See* Instrumentation and measuring science)
Audio (*See* Sound broadcasting and audio)
Avionics
Batteries and cells
Biomedical engineering
Bipolar transistors
Boolean algebra (*See* Logic)
Breakdown and gas discharges
Cables and overhead lines (*See also* Coaxial cables)
Calibration (*See* Instrumentation and measuring science)
Charge-coupled devices
Choppers (*See* Control equipment and applications)
Circuit breakers and circuit breaking
Circuit theory and design
Closed-loop systems
Coaxial cables (*See also* Cables and overhead lines)
Codes and decoding
Commutation
Components
Computer applications
Computer graphics
Computer simulation
Computer-aided design
Conductors and conductivity
Control equipment and applications
Control systems
Control theory
Convertors
Cybernetics and robotics
Decoding (*See* Codes and decoding)
Delay lines
Demodulation (*See* Modulation)
Detection
Dielectrics
Digital arithmetic (*See* Digital computers and computation)
Digital circuits
Digital communication systems
Digital computers and computation
Digital control (*See* Digital computers and computation)
Digital instrumentation (*See* Instrumentation and measuring science)
Diodes
Discharges, electric (*See* Arcing)
Discharges, gas (*See* Breakdown and gas discharges)
Distribution networks (*See* Power transmission)
Doping
Earthing (*See* System protection)
Eddy currents
Education and training
Electric shock (*See* Hazards)
Electromagnetics
Electron devices
Electronic circuits (*See* Circuit theory and design)
Energy conversion and storage
Engineering administration and management
Epitaxy
Errors and error analysis
Fault Location
Feedback
Ferrites and ferromagnetics
Ferromagnetics (*See* Ferrites and ferromagnetics)
Fibres, optical (*See* Optics)
Field-effect transistors
Filters and filtering
Fuel cells (*See* Batteries and cells)
Generators
Graph theory and topology
Gunn devices
Hazards
History (*See also* Reviews of progress)
Holography (*See* Optics)
Hysteresis
Image processing
Induction motors
Industrial applications of power (*See* Power utilisation and industrial applications)
Information and communication theory
Instrumentation and measuring science
Insulators and insulation
Integrated circuits (*See also* Circuit theory and design)
Integrated optics (*See* Optics)
Interface states
Interference (*See* Noise and interference)
Inverters (*See* Power electronics)
Ionisation (*See* Breakdown and gas discharges)
Ionospheric propagation (*See* Radio-wave propagation)
Lasers
Lighting
Lightning and lightning protection
Linear motors
Linear networks (*See* Networks)
Load and voltage regulation
Logic
Magnetic devices and properties
Magnetic fields
Mathematical techniques
Matrix algebra (*See* Mathematical techniques)
Measurement and measuring (*See* Instrumentation and measuring science)
Metal-insulator-semiconductor structures
Metal-oxide-semiconductor structures
Microprocessors
Microscopes
Microwave circuits and networks
Microwave components
Microwave measurements
Microwave systems
Modelling (*See* Simulation)
Modulation
Motors (*See also* Induction motors, linear motors, reluctance motors, stepping motors, synchronous motors)
Motors, induction (*See* Induction motors)
Motors, linear (*See* Linear motors)
Motors, reluctance (*See* Reluctance motors)
Motors, stepping (*See* Stepping motors)
Motors, synchronous (*See* Synchronous motors)
Multivariable control systems (*See also* Control equipment and applications)
Natural Resources
Networks (*See also* Telephone exchanges and networks)
Noise and interference
Nonlinear systems
Numerical analysis
Optical fibres (*See* Optics)
Optical processing (*See* Signal processing and optics)
Optical systems (*See* Optics)
Optical transmission (*See* Optics)
Optics
Optimal control
Optimisation
Optoelectronics
Oscillators (*See* Semiconductor devices and materials)
Overhead lines (*See* Cables and overhead lines)
Overvoltages (*See* System protection)
Pattern recognition (*See* Picture processing and pattern recognition)
Perturbation theory
Phasing and phase control
Physical properties
Picture processing and pattern recognition
Plasmas
Poles and zeros
Polynomials (*See* Mathematical techniques)
Power conversion (*See* Transformers)
Power electronics
Power system protection (*See also* System protection)
Power systems and plant
Power transmission and distribution (*See also* Transmission and distribution plant)
Power utilisation and industrial applications
Process control (*See also* Control theory)
Production engineering (*See* Project and production engineering)
Project and production engineering (*See also* Engineering administration and management)
Pulse-code modulation
Quantum electronics
Radar and radionavigation
Radiation
Radio waves (*See* Radio-wave propagation)
Radio-wave propagation (incl. Ionospheric and tropospheric)
Radiocommunication
Radionavigation (*See* Radar and radionavigation)
Railway electrification and transportation
Receivers
Relays (*See also* System protection)
Reliability
Reluctance motors
Reviews of progress
Robotics (*See* Cybernetics and robotics)
Satellite links and space communication
Schottky-barrier devices
Semiconductor devices and materials (*See also* Diodes, thyristors and transistors)
Semiconductor lasers
Servomotors
Signal processing
Simulation
Solar cells (*See also* Energy conversion and storage)
Sonics and ultrasonics
Sound broadcasting and audio
Space communication (*See* Satellite links and space communication)
Speech synthesis
Stabilisers (*See* Stability)
Stability
Standardisation and standards
Stepping motors
Superconductivity
Surface-acoustic-wave (SAW) devices
Switches and switching theory
Switchgear
Synchronous generators (*See* Generators)
Synchronous motors
System protection
Telecommunication (*See also* Radiocommunication)
Telecommunication traffic (*See* Telecommunication)
Telemetry
Telephone exchanges and networks
Telephony
Teletext
Television
Thyristors (*See also* Semiconductor devices and materials)
Topology (*See* Graph theory and topology)
Torque (*See* Motors)
Traction (*See* Railway electrification and transportation)
Transducers
Transformers
Transients
Transistors (*See also* Semiconductor devices and materials)
Transmission and distribution plant (*See also* Power transmission and distribution)
Transmission-lines
Transmitters
Transportation (*See* Vehicles and transportation)
Tropospheric propagation (*See* Radiowave propagation)
Turbogenerators (*See* Generators)
Ultrasonics (*See* Sonics and ultrasonics)
Underground cables (*See* Cables and overhead lines)
Vehicles and transportation
Very large scale integration
Vibration
Vocoders (*See* Voice communication)
Voice communication
Voltage regulators (*See* Load and voltage regulation)
Waveguides
Wind power (*See* Energy conversion and storage)
X-rays

Lectures

Kadoorie, Lord. The role of the engineer and the future of Hong Kong C p218
Nelson of Stafford, Lord. Export competitiveness: a factor of management and/or design. (The first Lord Nelson of Stafford Lecture) A p626
Stones, W.F. Recent history of electricity supply in Hong Kong C p219
Wilkes, M.V. Past, present and future of the computer field E p106

IEE commissioned reviews

Benson, F.A., and Tischer, F.J. Some guiding structures for millimetre waves p429
Brown, J.E., and Jones, B.L. Electrical variable speed drives p516
Guile, A.E. Electric arcs: their electrode processes and engineering applications p450
Jervis, M.W. Control and instrumentation of large nuclear power stations. A review of future trends p481
Kay, L. Electronic aids for blind persons; an interdisciplinary subject p559

Subject index

ACOUSTICS

Acoustic emission: its techniques and applications. R. Dukes and E.A. Culpan A p241
Acoustic microscopy: present and future. H.K. Wickramasinghe A p282
Bulk acoustic microwave delay lines: design, fabrication and performance. P. Defranould A p216
High-frequency sonar transducers: a review of current practice. B.V. Smith and B.K. Gazey F p285
Ship velocity determination by Doppler and correlation techniques. P.N. Denbigh F p315
Sonar (Editorial). D. Creasey and B. Smith F p241

ACTIVE NETWORKS

Classification, generation and evaluation of actively compensated noninverting finite-gain amplifiers. P.B. Lopes and B.B. Bhattacharyya G p177
Nonlinear sensitivity in a single-loop feedback circuit. A. Borys G p35

ACTUATORS

A small company's approach to designing for profit. D.R. Stewart A p623

ADAPTIVE CONTROL

Adaptive control of discrete-time time-varying systems with unknown deterministic disturbances. X. Xianya and R.J. Evans D p81
Online optimisation of the free parameters in discrete adaptive control systems. M. de la Sen D p146 D e228
The human body and its transducers: a real-time real-life computing and control system. M.H. Westbrook A p10

ALGORITHMS

A review of synchronisation and matching in fault-tolerant systems. W.R. Moore and N.A. Haynes E p119
Algebra-geometric approach for the model reduction of large-scale multivariable systems. L.S. Shieh and Y.T. Tsay D p23
An algorithm for the partitioning of logic circuits. M.W. Roberts and P.K. Lala E p113
Application of Gram–Schmidt algorithm to optimum radar signal processing. A. Farina and F.A. Studer F p139
Architectural approach to alternate low-level primitive structures (ALPS) for acoustic signal processing. Y.S. Wu, A.G. Constantinides, T.E. Curtis and L.J. Wu F p327
Combined resource-sharing algorithm. I.A. Newman, R.P. Stallard and M.C. Woodward E p55
Common-access channel network algorithm. A. Cantoni, R.J. Evans and B.J. Cook E p194
Computation of balanced realisations from transfer functions. K.V. Fernando and H. Nicholson D p203
Distributed routing algorithm for a circuit/packet switching network. W. Yu, J.C. Majithia and J.W. Wong F p751
Efficient algorithm for the optimal control of interconnected stochastic systems. A.K. Mahalanabis and G. Ray D p99
Fast algorithm for optimal weight computation in linear array pattern synthesis having null constraints. T.S. Ng and M.A. Magdy H p395
Fast iterative algorithm for reconstruction from divergent-ray projections. C.E. Goutis and S.N. Drossos E p89
Figures of merit for VLSI implementations of digital signal processing algorithms. J.S. Ward, P. Barton, J.B.G. Roberts and B.J. Stanier F p64
Heuristic network partitioning algorithm using the concept of loop index. J. Rutkowski G p203
Minimisation of Reed-Muller polynomials with fixed polarity. Y.Z. Zhang and P.J.W. Rayner E p177
Minimum norm state estimation for computer control of water distribution systems. M.J.H. Sterling and A. Bargiela D p57
New syndrome decoding techniques for the (n, k) convolutional codes. I.S. Reed and T.K. Truong F p412
Performance measurements of scheduling strategies and parallel algorithms for a multiprocessor quick sort. J. Chen, E.L. Dagless and Y. Guo E p45
Programmable variable-rate up/down counter for generating binary logarithms. H.-Y. Lo, J.-H. Lu and Y. Aoki E p125
Signal processing with occam and the transputer. R. Taylor F p610
Square-root solution for the discrete-time Lyapunov equation. K.V. Fernando and H. Nicholson D p107
Time-optimal control algorithm for microprocessor with asymmetrical bounds. I. Serra, L. Moreno and E. Luque D p238
Two-dimensional discrete convolution algorithm. B. Arambepola F p553

AMPLIFIERS

Classification, generation and evaluation of actively compensated noninverting finite-gain amplifiers. P.B. Lopes and B.B. Bhattacharyya G p177
Comparison of GIC-based active-*RC* allpass biquads. M.V. Popovich and V.B. Milić G p209
Frequency response of *RC*-active circuits using Norton amplifiers with highly asymmetrical slew rates. J.A. Gregorio and J.M. Drake G p237
High-frequency design of sinusoidal oscillators realised with operational amplifiers. J.L. Huertas, A. Rodriguez-Vazquez and B. Perez-Verdu G p137
Improved analysis of the harmonic and intermodulation performance of operational amplifiers. M.T. Abuelma'atti G p226
Large-signal field analysis of an O-type travelling-wave amplifier. Part 1: Theory. N. Kalyanasundaram I p145

ANALOGUE COMPUTERS AND COMPUTATION

Electrical network analogue for determining the optimal flows in multiterminal communication networks. B.V. Odintsov and A.C. Davies G p171

ANALOGUE-DIGITAL CONVERSION

Analogue-to-digital transform to preserve the frequency-magnitude characteristics of all-pole filters. A.G. Bolton G p131
Generating analogue FM pulses using a 1 bit digital technique. J.A. Johnston F p349
Real-time six-port reflectometer. G.F. Luff, P.J. Probert and J.E. Carroll H p186

ANTENNAS

Accurate transmission-line model for the rectangular microstrip antenna. H. Pues and A. Van de Capelle H p334
Advanced domestic digital satellite communications systems experiments. A. Iso, T. Izumisawa and N. Ishida F p92
Analysis of subreflectors for dual reflector antennas. N.C. Albertsen and K. Pontoppidan H p205
Application of a systolic array to adaptive beamforming. C.R. Ward, A.J. Robson, P.J. Hargrave and J.G. McWhirter F p638
Circular waveguide bifurcation for asymmetric modes. H.W. Schilling and R.E. Collin H p397
Coaxial-line driven monopole on an electrically thick conducting cylinder over a ground plane. E.K. Yung and C.M. Butler H p54
Compact gain measurements on reflector antennas. M. Hoque, M.S. Smith and D.E.N. Davies H p371
Crosspolarisation behaviour of series-fed microstrip linear arrays. P.S. Hall and J.R. James H p247
Diffraction coefficients for a curved edge with soft and hard boundary conditions. A.H. Serbest H p383
Directivities of helical antennas radiating in the axial mode. K.F. Lee and P.F. Wong H p121
Dual-mode coaxial feed with low crosspolarisation. R.E. Collin and H.W. Schilling H p405
Dualband horn with inherent isolation between its transmit and receive ports. L. Shafai, A. Ittipiboon, E. Bridges and F. Hyjazie H p143
Effects of mutual coupling in conical horn arrays. P.J.B. Clarricoats, S.M. Tun and C.G. Parini H p165
Fast algorithm for optimal weight computation in linear array pattern synthesis having null constraints. T.S. Ng and M.A. Magdy H p395
Frequency characteristics of tapered backfire helical antenna with loaded termination. H. Nakano, S. Iio and J. Yamauchi H p147
Generalisation of the concept of equivalent radius of thin cylindrical antennas. B.D. Popović and A. Nešić H p153
Geometric-optic synthesis of single-reflector antennas with distributed sources. B.S. Westcott and F. Brickell H p9
Input impedance of probe-excited rectangular microstrip patch radiator. A. De and B.N. Das H p31
Low-frequency approach to the problem of a horizontal wire antenna above an imperfect ground. A. Karwowski H p214
Meniscus-lens-corrected corrugated horn: a compact feed for a Cassegrain antenna. P.-S. Kildal, K. Jakobsen and K.Sudhakar Rao H p390
Method of null steering without using phase shifters. T.B. Vu H p242
Millimetre-wave Gaussian beam-mode optics and corrugated feed horns. R.J. Wylde H p258
Millimetre-wave hybrid dielectric-microstrip antenna array. J.R. James, G. John and C.M. Hall H p341
Monofilar conical-helix antenna with low pitch angle. H. Nakano, T. Mikawa and J. Yamauchi H p379
Multinotch logic-product polarisation suppression filters. A typical design example and its performance in a rain clutter environment. A.J. Poelman and J.R.F. Guy F p383
Mutual coupling compensation for small, circularly symmetric planar antenna arrays. D.E.N. Davies H d426
New derivation for the rough-surface reflection coefficient and for the distribution of sea-wave elevations. A.R. Miller, R.M. Brown and E. Vegh H p114
New procedure for near-field measurements of microwave antennas without anechoic environments. J.F.R. Pereira, A.P. Anderson and J.C. Bennett H p351
Open and hybrid microstrip antennas. E. Penard and J.P. Daniel H p38
Parabolic torus transreflector antenna. L.M. Diaz and M.S. Smith H p359
Performance of offset reflector antennas with array feeds. P.J.B. Clarricoats, S.M. Tun and R.C. Brown H p172
Printed dipole millimetre-wave array using an insular guide feeder. M.T. BirandN. Williams H p107
Propagation and radiation behaviour of dual-depth corrugated horns. A.D. Olver, K.K. Yang and P.J.B. Clarricoats H p179
Radiation characteristics of higher-order modes in microstrip ring antenna. A. Das, S.K. Das and S.P. Mathur H p102
Reactive reflectors. Yi-Lin Chen and Y.T. Lo H p263

Receiving analysis of the shaped cylindrical reflector antenna with an array feed. G. Morris H p123
Self and mutual admittance between two concentric, coplanar, circular radiating current sources. A.K. Bhattacharyya and R. Garg H p217
Study of dual-offset reflector antenna with dielectric cone feed. A.D. Olver, P.J.B. Clarricoats and E.E. Voglis H p69
Systematic design of a dual offset reflector antenna with an elliptical aperture. B.S. Westcott, R.K. Graham and F. Brickell H p365

ARCING

Analysis of the arc formed along the surface of a flat plate immersed in a laminar flow of gas. S. Au, J. Santiago and P.R. Smy A p605
Computer modelling of series-compensated EHV transmission systems. R.K. Aggarwal, A.T. Johns and A. Kalam C p188
Current interruption by disconnecting switch and earthing switch in GIS. K. Suzuki, H. Mizoguchi, N. Shimokawara, Y. Murayama and S. Yanabu C p54
Developments in the simulation of long-distance single-pole-switched EHV systems. A.T. Johns and A.M. Al-Rawi C p67
Electric arcs: their electrode processes and engineering applications. A.E. Guile A p450
Flashover phenomena of polluted insulators. S. Gopal and Y.N. Rao C p140
Laboratory investigations of RF plasmas relevant to CW arc pluming at high-power aerials. Pt. 2: Relevance of scale-model studies based on pulsed RF techniques. D.C. Cook and S.C. Haydon A p153

AVIONICS

Inexpensive multipurpose airborne surveillance radar. P.D.L. Williams F p507

BIOMEDICAL ENGINEERING

Electronic aids for blind persons: an interdisciplinary subject. L. Kay A p559
Full-wave computed tomography. Pt. 1: Fundamental theory. R.H.T. Bates A p610
Full-wave computed tomography. Pt. 2: Resolution limits. A.D. Seagar, T.S. Yeo and R.H.T. Bates A p616
Medical ultrasonic standards at NPL. R.C. Preston and A.J. Livett A p233
Medical ultrasonics. P.N.T. Wells A p225
Optical-fibre thermometer for medical use. A.M. Scheggi, M. Brenci, G. Conforti and R. Falciai H p270
Parameter estimation of system dynamics with modulation-type noise—application to the modelling of the dynamic relationship between the EMG and force transients in muscle. P.J. Lago and N.B. Jones D p221
Performance of Videotex-to-speech convertor. O.R. Omotayo A p328
Spectral analysis of short-time biomedical data using adaptive filters. J. Braham Levy and D.A. Linkens A p164

BIPOLAR TRANSISTORS

Computer-aided linear modelling of high-frequency bipolar transistors. O.P.D. Cutteridge and Y.S. Zhang G p252
Simple analytical one-dimensional model for saturation operation of the high-voltage bipolar power transistor. G.T. Wright and P.P. Frangos I p207

BREAKDOWN AND GAS DISCHARGES

Analysis of the arc formed along the surface of a flat plate immersed in a laminar flow of gas. S. Au, J. Santiago and P.R. Smy A p605
Electric arcs: their electrode processes and engineering applications. A.E. Guile A p450
Microwave cavity of improved design for gas breakdown studies and its application to helium-oxygen mixtures. D. Smith, W.R. Bell and L.J. Auchterlonie H p235
Space-charge-limited electron current flow between coaxial cylinders and concentric spheres with ion production at an intermediate radius. C.B. Wheeler A p325

CABLES AND OVERHEAD LINES

Cooling of oil-filled cable joints using heat pipes. J.P. Ruiter and A.W. Thus C p340
Eddy-current losses in three-phase power cable and pipe-sheathing systems. G. Szymański and A. Patecki A p125
Influence analysis of the shielding grid parameters on right-of-way and on corona effects of an EHV 3-phase transmission line. S. Cristina C p333
Jamuna River 230 kV crossing, Bangladesh—Pt. 1: Design. J.A. Chandler, L.W. Hinch, D.A. Hughes, D.M. McDowell, P.W. Rowe and A.B. Wood C p303
Jamuna River 230 kV crossing, Bangladesh—Pt. 2: Construction. J.A. Chandler, L.W. Hinch, R.I. Fair, D.A. Hughes, J. Peraino and P.W. Rowe C p319
Overhead lines—some aspects of design and construction. J.F. Adam, J. Bradbury, W.R. Charman, G. Orawski and M.J. Vanner C p149

CALIBRATION

Calibration of a precision three-port coaxial junction: a new component for immittance standardisation. D. Woods A p302

CHOPPERS

Rheostatic stabilisation of a chopper-controlled brake for traction drives. J. Allan, B. Mellitt and M.H. Pong B p190

CIRCUIT THEORY AND DESIGN

CMOS Schmitt triggers. B.L. Dokić G p197
Comparison of GIC-based active-*RC* allpass biquads. M.V. Popovich and V.B. Mišić G p209
Design and implementation of digital wave filters using universal adaptor structures. H.M. Reekie, P. Petrie, J. Mavor, P.B. Denyer and C.H. Lau F p615
Frequency response of *RC*-active circuits using Norton amplifiers with highly asymmetrical slew rates. J.A. Gregorio and J.M. Drake G p237
Gateway: a teaching exercise in gate-array technology. M.A. Jack and J.M. Robertson A p722
Low-voltage rail-supply-insensitive PTAT current generator. R.W.J. Barker and B.L. Hart G p242
Nonsymmetric multivibrators with an auxiliary *RC*-circuit. I.M. Filanovsky, V.A. Piskarev and K.A. Stromsmoe G p141
Stability analysis of *RC* oscillator using CMOS transistors. B.L. Dokić and Z.V. Bundalo G p127

CLOSED-LOOP SYSTEMS

Computer-aided design of nonlinear controllers for torque controlled robot arms. M. Sahba and D.Q. Mayne D p8

COAXIAL CABLES

Coupling in a dielectric-coated multicoaxial-cable system. An analysis based on a quasi-TEM model. S. Sali, F.A. Benson and J.E. Sitch A p67

CODES AND DECODING

Adaptive differential pulse-code modulation with adaptive bit allocation. E.D. Frangoulis, K. Yoshida and L.F. Turner F p542
Autocorrelation function of the multiplexed sequence. S.M. Jennings F p169
Cryptographic techniques and network security. F. Ayoub and K. Singh F p684
DC coefficient restoration in transform image coding. W.K. Cham and R.J. Clarke F p709
Digital encoding by means of new T-codes to provide improved data synchronisation and message integrity. M.R. Titchener E p151
Digital line segment coding: A new efficient contour coding scheme. B.B. Chaudhuri and M.K. Kundu E p143
Evaluation of hybrid error control systems. D. Drajić and B. Vučetić F p183
Facsimile coding using symbol-matching techniques. D.M. Silver and D.A.H. Johnson F p125
Hybrid intraframe transform coding of image data. R.J. Clarke F p2
Limits on the search rate of a pseudonoise sliding correlator synchroniser due to self-noise and decorrelation. R.F. Ormondroyd and V.E. Comley F p742
Linear unequal error locating codes (UEL codes). B.K. Dass and J. Krishnamurthy F p52
Mean-square correlation of shift-register sequences. D.V. Sarwate F p101
New syndrome decoding techniques for the (*n*, *k*) convolutional codes. I.S. Reed and T.K. Truong F p412
Predictive entropy coding for speech analysis. S.E. Hrvatin and J.W. Mark F p537
Simple cyclic codes for burst errors. E. Oicayto and T. Lesz F p153
Transform approach to split-band coding schemes. F.S. Yeoh and C.S. Xydeas F p57
Walsh-transform coding of the speech residual in RELP coders. P.C. Ching and C.C. Goodyear G p29

COMMUTATION

Current-impulse-displacement thyristor commutation with controlled trapped energy. B.W. Williams B p21
Generalised analysis for steady-state characteristics of DC commutatorless motors. Y. Takeda, S. Morimoto and T. Hirasa B e14

COMPONENTS

The business of VLSI. C.A.P. Foxell A p17

COMPUTER APPLICATIONS

Computer-aided thermal analysis of reverse-biased PIN diodes. V. Ramamurthy, K.N. Bhat and D. Kakati I p82
Computers in power systems. D. Lidgate C p113
Control and instrumentation of large nuclear power stations. A review of future trends. M.W. Jervis A p481
Cryptographic techniques and network security. F. Ayoub and K. Singh F p684
Electronic control of small hydroelectric schemes using a microcomputer. S. Kormilo and P. Robinson E p132
Full-wave computed tomography. Pt. 1: Fundamental theory. R.H.T. Bates A p610
Full-wave computed tomography. Pt. 2: Resolution limits. A.D. Seagar, T.S. Yeo and R.H.T. Bates A p616
High-speed optical-fibre ring network with a register insertion access protocol. F. Abdul-Ghani and P.A. Davies H p83
Microcomputer calculation of fault levels for operational interlocking. F. Psomadellis and D. Lidgate C p107
Model reduction of linear multivariable control systems via frequency matching. L.R. Pujara and K.S. Rattan D p243
Multiuser microprocessor development system for undergraduate training. J. Dunlop A p170
Performance of Videotex-to-speech convertor. O.R. Omotayo A p328
Quad encoded display. D.J. Milford and P.J. Willis E p70
Receiving analysis of the shaped cylindrical reflector antenna with an array feed. G. Morris H p123
Response improvements in industrial DC drives derived from optimal analysis. B.J. Cardwell and C.J. Goodman B p91
Signal processing with occam and the transputer. R. Taylor F p610
Track-recording techniques used on British Rail. R.B. Lewis B p73
Virtual resource ring: Technique for decentralised resource management in fault-tolerant distributed computer systems. R. Hull, F. Halsall and R.L. Grimsdale E p38

COMPUTER GRAPHICS

Quad encoded display. D.J. Milford and P.J. Willis E p70

COMPUTER SIMULATION

Architectural approach to alternate low-level primitive structures (ALPS) for acoustic signal processing. Y.S. Wu, A.G. Constantinides, T.E. Curtis and L.J. Wu F p327
Computer-aided linear modelling of high-frequency bipolar transistors. O.P.D. Cutteridge and Y.S. Zhang G p252
Method of using data from computer simulations to test protection equipment. A. Williams and R.H.J. Warren C p349
The performance of combined feedforward AGC and phase-locked AFC in a single sideband mobile radio receiver. J.P. McGechan and J.P.H. Sladen F p437

COMPUTER-AIDED DESIGN

Analysis and performance of a high-field permanent-magnet synchronous machine. K.J. Binns and T.M. Wong **B** p252
Analysis and restructuring of concurrent systems using Prolog. F.G. Heath, P.W. Foulk and D.Y. Li **E** p169
CAD for the design and evaluation of industrial control systems. D.J. Sandoz **D** p125
Computer-aided design of nonlinear controllers for torque controlled robot arms. M. Sahba and D.Q. Mayne **D** p8
Fast modelling techniques for microprocessor-based optimal pulse-width-modulated control of current-fed inverter drives. S.R. Bowes and R. Bullough **B** p149
High-speed single-board flexible hardware implementation of a wave digital filter. S.S. Lawson and S. Terplan **G** p17
Numerical and CAD techniques applied to overhead equipment for electric railways. M. Rothman and A.D. Suddards **B** p170
PWM switching strategies for current-fed inverter drives. S.R. Bowes and R. Bullough **B** p195
Steady-state performance of PWM inverter drives. S.R. Bowes and J. Clare **B** d231
Steady-state performance of current-fed pulse-width-modulated inverter drives. S.R. Bowes and R. Bullough **B** p113

CONDUCTORS AND CONDUCTIVITY

Eddy-current losses in three-phase power cable and pipe-sheathing systems. G. Szymański and A. Patecki **A** p125
Generalisation of the concept of equivalent radius of thin cylindrical antennas. B.D. Popović and A. Nešić **H** p153
Low-frequency approach to the problem of a horizontal wire antenna above an imperfect ground. A. Karwowski **H** p214
New analytical approach for computing DC unipolar corona losses. M. D'Amore, V. Daniele and G. Ghione **A** p318
Normalised impedance of circular, trapezoidal and rectangular conductors in semiclosed slots: a unified transmission line approach. M.H.S. El-Markabi and E.M. Freeman **A** p129

CONTROL EQUIPMENT AND APPLICATIONS

Control and instrumentation design. C. Henderson and J.C.F. White **C** p283
Control and instrumentation of large nuclear power stations. A review of future trends. M.W. Jervis **A** p481
Electronic control of small hydroelectric schemes using a microcomputer. S. Kormilo and P. Robinson **E** p132
Microprocessor-based adaptive load-frequency control. J. Kanniah, S.C. Tripathy, O.P. Malik and G.S. Hope **C** p121
Numerical speed control of a current-fed asynchronous machine by measurement of supply voltages. B. de Fornel, J.L. Bach, J.C. Hapiot and M. Pietrzak-David **B** p165
Power conversion and control with zero AC current harmonics by means of a time-variable transformer. S. Singer **G** p147
Rheostatic stabilisation of a chopper-controlled brake for traction drives. J. Allan, B. Mellitt and M.H. Pong **B** p190
Semiconductor fault-current limiters Pt. 2: Investigations on a semiconductor-diode fault-current limiter for use in power systems. S. Palanichamy and P. Chinnasamy **C** p98
Semiconductor fault-current limiters Pt. 3: Investigations on microprocessor-based thyristor fault-current limiter for use in power systems. S. Palanichamy and P. Chinnasamy **C** p103
Voltage control for an HVDC convertor. D. O'Kelly **C** p5

CONTROL SYSTEMS

A new approach to reduced-order modelling. K. Warwick **D** p74
CAD for the design and evaluation of industrial control systems. D.J. Sandoz **D** p125
Combined control and protection system for improved performance of HVDC links in the presence of AC faults. G. Galanos, N. Vovos and G. Giannakopoulos **C** p129
Electrical variable-speed drives. B.L. Jones and J.E. Brown **A** p516
Fast modelling techniques for microprocessor-based optimal pulse-width-modulated control of current-fed inverter drives. S.R. Bowes and R. Bullough **B** p149
Functional bounds on the time response of multivariable nonlinear systems. J.O. Gray and D. Valsamis **D** p92
Matrix sector functions and their applications to systems theory. L.S. Shieh, Y.T. Tsay and C.T. Wang **D** p171
Microprocessor control of a variable reluctance motor. P.H. Chappell, W.F. Ray and R.J. Blake **B** p51
Minimum norm state estimation for computer control of water distribution systems. M.J.H. Sterling and A. Bargiela **D** p57
New structure for an adaptive servomechanism controller. H.M. Silveira and R. Doraiswami **D** p64
Note on decentralised stabilisation of unknown linear interconnected systems. J. Lyou and Z. Bien **D** p202
Online adaptive control of a fermentation process. D. Williams, P. Yousefpour and B.H. Swanick **D** p117
Online optimisation of the free parameters in discrete adaptive control systems. M. de la Sen **D** p146 **D** e228
Optimal controllers for bank-to-turn CLOS guidance. D.J. Roddy, G.W. Irwin and H. Wilson **D** p109
Pole assignment in decentralised systems: a structural approach. F.J. Evans and M. Kruser **D** p229
Reachability in variable structure control systems. B.A. White and P.M. Silson **D** p85
Recursive smoothing for discrete-time systems as a filtering problem. R. Gessing **D** p140
Robust controller design by minimisation of the variation of the coefficients of the closed-loop characteristic equation. C.S. Berger **D** p103
Software realisation of synchronisation and firing control of thyristor convertors. S.K. Tso and F.W. Pu **B** p141
Stochastic optimal control and its connection with estimation. R. Gessing **D** p165
The human body and its transducers: a real-time real-life computing and control system. M.H. Westbrook **A** p10

CONTROL THEORY

Analysis of singular systems using orthogonal functions. P.N. Paraskevopoulos **D** p37
Design of optimal observers for structural control. M. Abdel-Rohman **D** p158
New structure for an adaptive servomechanism controller. H.M. Silveira and R. Doraiswami **D** p64
On the selection of states to be retained in a reduced-order model. G.J. Lastman, N.K. Sinha and P. Rózsa **D** p15
On using orthogonal functions with singular systems. S.L. Campbell **D** p267
Optimal controllers for bank-to-turn CLOS guidance. D.J. Roddy, G.W. Irwin and H. Wilson **D** p109
Parameter estimation from noncontiguous data. P.J. Gawthrop **D** p261
Simplified analytic stability test for systems with commensurate time delays. D. Hertz, E.I. Jury and E. Zeheb **D** p52
Singular perturbation method for Kalman filter in discrete systems. A. Kailasa Rao and D.S. Naidu **D** p39
Square-root solution for the discrete-time Lyapunov equation. K.V. Fernando and H. Nicholson **D** p107

CONVERTORS

AC/DC: one man's view. J.D. McColl **A** p38
Combined control and protection system for improved performance of HVDC links in the presence of AC faults. G. Galanos, N. Vovos and G. Giannakopoulos **C** p129
Cycloconvertor-excited divided-winding doubly-fed machine as a wind-power convertor. P.G. Holmes and N.A. Elsonbaty **B** p61
Determination of voltage-distortion factor for a network loaded with several DC motor drives. P. Crnošija **C** p81
Electrical variable-speed drives. B.L. Jones and J.E. Brown **A** p516
Operating principles for hidden-link convertor drive. P.H. Chappell, R.M. Davis and R.J. Blake **B** p237
Radio frequency characteristics of HVDC convertor station components. R.V. DeVore, S. Pleasants and R. Caldecott **C** p61
Software realisation of synchronisation and firing control of thyristor convertors. S.K. Tso and F.W. Pu **B** p141
Voltage control for an HVDC convertor. D. O'Kelly **C** p5

DELAY LINES

Bulk acoustic microwave delay lines: design, fabrication and performance. P. Defranould **A** p216
Study of the relative sonar performance of incoherent and coherent processing against echo fading in shallow water. J.F. Dix and R.F. Palmer **F** p308

DEMODULATION

14/11 GHz, 120 Mbit/s regenerative satellite transponder. G. Ohm **F** p442

DETECTION

Adaptive adjustment of receiver for distorted digital signals. A.P. Clark and S.F. Hau **F** p526
Detection probability of a partially fluctuating target. E. Dalle Mese and D. Giuli **F** p179
Fast start-up channel estimation. A.P. Clark, Z.C. Zhu and J.K. Joshi **F** p375
M-ary continuous phase frequency shift keying with modulation index $1/M$. N. Ekanayake **F** p173 **F** e694
Nonlinear polarisation-vector translation in radar systems. A promising concept for real-time polarisation-vector signal processing via a single-notch polarisation suppression filter. A.J. Poelman and J.R.F. Guy **F** p451

DIELECTRICS

Dispersion in unilateral fin lines with two dielectric layers. H.C.C. Fernandes and A.J. Giarola **H** p139
Higher-order mode interaction in planar periodic structures. N.V. Shuley **H** p129
Low-frequency approach to the problem of a horizontal wire antenna above an imperfect ground. A. Karwowski **H** p214
Meniscus-lens-corrected corrugated horn: a compact feed for a Cassegrain antenna. P.-S. Kildal, K. Jakobsen and K.Sudhakar Rao **H** p390
Millimetre-wave hybrid dielectric-microstrip antenna array. J.R. James, G. John and C.M. Hall **H** p341
New approach to analyse strip- and microstrip-like transmission lines with anisotropic substrates having a tilted optical axis. B. Bhat and S.K. Koul **H** p191 **H** e289
Printed dipole millimetre-wave array using an insular guide feeder. M.T. BirandN. Williams **H** p107
Study of dual-offset reflector antenna with dielectric cone feed. A.D. Olver, P.J.B. Clarricoats and E.E. Voglis **H** p69
Study of planar-helix slow-wave structure for application to travelling-wave tubes. D. Chadha, S. Aditya and R.K. Arora **H** p14
Theoretical basis for the design of the radially stratified dielectric-loaded cavities used in miniaturised atomic frequency standards. T. Sphicopoulos, L.-G. Bernier and F. Gardiol **H** p94

DIGITAL CIRCUITS

Design and implementation of digital wave filters using universal adaptor structures. H.M. Reekie, P. Petrie, J. Mavor, P.B. Denyer and C.H. Lau **F** p615

DIGITAL COMMUNICATION SYSTEMS

Adaptive adjustment of receiver for distorted digital signals. A.P. Clark and S.F. Hau **F** p526
Analogue adaptive hybrid for digital transmission on subscriber lines. I. Korn **F** p517
Application of surface-acoustic-wave technology to burst-format spread-spectrum communications. M. Kowatsch **F** p734
Cryptographic techniques and network security. F. Ayoub and K. Singh **F** p684
Data transmission over UHF fading mobile radio channels. A.J. Bateman and J.P. McGeehan **F** p364 **F** d767
Derivation of impulse responses under minimum phase constraints. F. Takawira and D.G.W. Ingram **F** p425
Digital line segment coding: A new efficient contour coding scheme. B.B. Chaudhuri and M.K. Kundu **E** p143
HHI service integrated optical broadband communications system: results of a long-time operation and review. H.W. Kreutzer and W. Werner **H** p87
New direct regenerator for 16-ary QAM signalling. A. Riris **F** p407

Performance analysis of 16-ary QAM signalling through two-link nonlinear channels in additive Gaussian nooise. A.H. Aghvami F p403
Signal processing with occam and the transputer. R. Taylor F p610

DIGITAL COMPUTERS AND COMPUTATION

Analysis and restructuring of concurrent systems using Prolog. F.G. Heath, P.W. Foulk and D.Y. Li E p169
Approach for register allocation in microprogram generation. E. Luque and A. Ripoll G p99
Combined resource-sharing algorithm. I.A. Newman, R.P. Stallard and M.C. Woodward E p55
Design and evaluation of the event-driven computer. F.S. Wong and M.R. Ito B p209
Memory interference in multimicroprocessor systems with a time-shared bus. P.A. Grasso, T.S. Dillon and K.E. Forward E p61
Multiprocessors and distributed computing (Editorial). F.K. Hanna and E.L. Dagless E p37
Past, present and future of the computer field. M.V. Wilkes E p106
Performance measurements of scheduling strategies and parallel algorithms for a multiprocessor quick sort. J. Chen, E.L. Dagless and Y. Guo E p45
Processing of inverted files in magnetic-bubble memories. M. Zaki and F. Elbo-raey C p76
Programmable variable-rate up/down counter for generating binary logarithms. H.-Y. Lo, J.-H. Lu and Y. Aoki E p125
Virtual resource ring: Technique for decentralised resource management in fault-tolerant distributed computer systems. R. Hull, F. Halsall and R.L. Grimsdale E p38

DIGITAL CONTROL

Microprocessor-controlled HVDC simulator. J. Arrillaga, J.C. Graham and H. Hisha C p197
Simplified technique of model order reduction with performance verification by fast digital simulation. A.S. Morris D p69
Time-memory tradeoff in exponentiating a fixed element of $GF(q^n)$ requiring a short reference to the memory. B. Arazi E p148

DIGITAL INSTRUMENTATION

Design of very-low-frequency digital oscillators. J.I. Acha, J. Payán-Somet and A. Civit G p93
Theorems on power, mean and RMS values of uniformly sampled periodic signals. T.S. Rathore A p598

DIODES

Characteristics of double heterostructure $PbS_{1-x}Se_x$ diode lasers prepared by compositional interdiffusion. F.J. Bryant and A. Qadeer I p113
Computer-aided thermal analysis of reverse-biased PIN diodes. V. Rama-murthy, K.N. Bhat and D. Kakati I p82
Dependence of the Schottky barrier height of GaP/polymer/Au diodes on the area per carboxylic acid group. C.S. Winter, R.H. Tredgold, P. Hodge and E. Khoshdel I p125
Dynamical thermal properties of stripe-geometry laser diodes. W. Nakwaski I p94
Etch-induced MOS guard-ring-protected Schottky-barrier diodes. R.N. Sree-nath, M. Mohan Chandra and G. Suryan I p63
Frequency modulation of Impatt diodes by optical illumination. C. Chiu and J. Freyer I p28
MBE GaAs Impatt diodes with reduced drift region for mm-wave frequencies. X. Zhang, J. Freyer, G. Weimann and W. Schlapp I p203
Method for evaluation of hysteretic interface properties and their application to anodised InSb MIS diodes. T. Nakagawa and H. Fujisada I p51
SVG guard-ring Al-Ti-Si Schottky diode for high-speed LSI applications. T. Fukushima, K. Ueno, T. Fukumoto and K. Tanaka I p59
Single drift impatt diodes on diamond heat sinks for W-band frequencies. D. Leistner I p56

DISCHARGES, ELECTRIC

Electric arcs: their electrode processes and engineering applications. A.E. Guile A p450
High-voltage spark discharge source as an ultrasonic generator. J.A. Cooper, R.J. Dewhurst, S. Moody and S.B. Palmer A p275
Laboratory investigations of RF plasmas relevant to CW arc pluming at high-power aerials. Pt. 2: Relevance of scale-model studies based on pulsed RF techniques. D.C. Cook and S.C. Haydon A p153
Laboratory investigations of pulsed RF plasmas relevant to CW arc pluming at high-power aerials. Pt. 1: Critical breakdown under pulsed RF conditions. I.C. Plumb, D.C. Cook and S.C. Haydon A p145
New analytical approach for computing DC unipolar corona losses. M. D'Amore, V. Daniele and G. Ghione A p318

DISCHARGES, GAS

Analysis of the arc formed along the surface of a flat plate immersed in a laminar flow of gas. S. Au, J. Santiago and P.R. Smy A p605
Electric arcs: their electrode processes and engineering applications. A.E. Guile A p450
Laboratory investigations of RF plasmas relevant to CW arc pluming at high-power aerials. Pt. 2: Relevance of scale-model studies based on pulsed RF techniques. D.C. Cook and S.C. Haydon A p153
Laboratory investigations of pulsed RF plasmas relevant to CW arc pluming at high-power aerials. Pt. 1: Critical breakdown under pulsed RF conditions. I.C. Plumb, D.C. Cook and S.C. Haydon A p145
Leader development in short point-plane gaps in compressed SF_6. I.D. Chal-mers, O. Farish, A. Gilbert and J. Dupuy A p159

EARTHING

Current interruption by disconnecting switch and earthing switch in GIS. K. Suzuki, H. Mizoguchi, N. Shimokawara, Y. Murayama and S. Yanabu C p54

EDDY CURRENTS

Analytic separation of the factors contributing to the eddy-current loss in magnetically nonlinear steel. A.L. Bowden and E.J. Davies B d37
Eddy-current losses in three-phase power cable and pipe-sheathing systems. G. Szymański and A. Patecki A p125
Eddy-current starter for AC motors. M. Krichevsky, R. Rabinovici and B. Sharir B p13
Three-dimensional eddy-current calculation using loop variables to represent magnetic vector potential in conducting regions. J.A.M. Davidson and M.J. Balchin A p577

EDUCATION AND TRAINING

A co-operative venture in electrical engineering education: designing a course. B. Bolton, J.T. France and A.J. Prescott A p684
Breadth at the top: the four-year degree in electronic engineering at the University of Southampton. R.W. King A p690
Britain: Second best by choice?. G. Beuret A p668
Challenges to engineering education. J. Butcher A p662
Changing patterns in electrical and electronic engineering education (Editorial). B. Bolton A p661
Changing rôle of the engineer in the electronics industry. W. Gosling A p665
Continuing education for industrial electronics graduates. P.M. Grant and R. McMurtrie A p734
Degrees for technician engineers. F. Dellow and J.W. Prentice A p749
Design and innovation. A p654
Economics and technical consultancy. T.W. Berrie A p378
Engineering curriculum design. R.G. Carter A p678
Four year Dainton course in electrical engineering at Imperial College. L. Walker and B.J. Cory A p703
Gateway: a teaching exercise in gate-array technology. M.A. Jack and J.M. Robertson A p722
Multiuser microprocessor development system for undergraduate training. J. Dunlop A p170
SHIPS: the Sheffield industrial project scheme. B. Chambers and R. Brown A p714
Some ideas for a new style of electrical engineering degree course. G.A. Bat-tersby and K.B. Reed A p673
System approach to a broader concept in engineering education: the WPI plan. W.R. Grogan A p676
Teaching company scheme: a unique style of postgraduate activity with industry. D.W. Saunders and M.J. Hampshire A p728
Teaching innovations in the special engineering programme at Brunel University. B. O'Connor, J.A. Ainscough and R. Rakowski A p697
The place of innovative and commercial skills in engineering education in the UK. B. Bolton and J.L. Spanyol A p174
The product enterprise: activity programmes for engineering undergraduates. B. Bolton and J.L. Spanyol A p708
The rise and fall of the HNC: long live the HNC!. R. Bourne A p745
The university as a business. J. M. Ashworth A p635
The video-taped course revolution. K.D. Stephen A p739
University-based consultancy. M.A. Laughton A p362

ELECTROMAGNETICS

Analytic separation of the factors contributing to the eddy-current loss in magnetically nonlinear steel. A.L. Bowden and E.J. Davies B d37
Coupling in a dielectric-coated multicoaxial-cable system. An analysis based on a quasi-TEM model. S. Sali, F.A. Benson and J.E. Sitch A p67
Diffraction coefficients for a curved edge with soft and hard boundary conditions. A.H. Serbest H p383
Energy partitioning in an inductively driven rail gun. K.K. Sen and P.K. Ray A p140
Generation of blastwaves from confined electrical discharges. M.A. Nettleton A p96
Method of calculation of the transient electromagnetic field in ferromagnetic materials for the known vector of induction B on the surface. S. Wiak A p293 A e622
Open and hybrid microstrip antennas. E. Penard and J.P. Daniel H p38
Radiation characteristics of higher-order modes in microstrip ring antenna. A. Das, S.K. Das and S.P. Mathur H p102
Self and mutual admittance between two concentric, coplanar, circular radiating current sources. A.K. Bhattacharyya and R. Garg H p217
Some guiding structures for millimetre waves. F.A. Benson and F.J. Tischer A p429
Three-dimensional eddy-current calculation using loop variables to represent magnetic vector potential in conducting regions. J.A.M. Davidson and M.J. Balchin A p577
Unified approach to problems in electromagnetism. J. Penman and J.R. Fraser A p55
Viscous torque of disc-type magnetic fluid slip clutches. G. Varadakumari and K.A. Muraleedharan A p584

ELECTRON DEVICES

Channel multiplier CRT. A.W. Woodhead, D. Washington, J.R. Mansell, C.D. Overall, A.G. Knapp and P. Schagen I p2
Colour selection in the channel-multiplier CRT. J.R. Mansell, A.W. Woodhead, A.G. Knapp and H.D. Stone I p13
Electron field emission from copper with various thicknesses of oxide film. A.E.D. Heylen, A.E. Guile and D.V. Morgan A p111
Flat deflection system for a channel multiplier CRT. D.L. Lamport, A.W. Woodhead, D. Washington and C.D. Overall I p10
Generation of electron beams for gyrotron tubes. H.B. Mitchell and J.M. Wachtel I p177
Large-area channel electron multiplier for CRT applications. A.G. Knapp, D. Washington, A.J. Guest, R.W.A. Gill, R. Pook and L.H. Francis I p6
Large-signal field analysis of an O-type travelling-wave amplifier. Part 1: Theory. N. Kalyanasundaram I p145

ELECTRONIC CIRCUITS

Comparison of GIC-based active-*RC* allpass biquads. M.V. Popovich and V.B. Mišić G p209
Distortion in CMOS operational amplifier circuits. B. Wu and J. Mavor I p129
High-frequency design of sinusoidal oscillators realised with operational amplifiers. J.L. Huertas, A. Rodriguez-Vazquez and B. Perez-Verdu G p137
Improved analysis of the harmonic and intermodulation performance of operational amplifiers. M.T. Abuelma'atti G p226
Switched-capacitor implementations of phase-locked loops. J.J. Mulawka and A. Pakulak G p221
The business of VLSI. C.A.P. Foxell A p17

ENERGY CONVERSION AND STORAGE

Electricity supply—problems and possibilities. M.N. John **A** p1
Looking for alternatives. D.T. Swift-Hook **A** p44
On the dust-equivalent series resistance of a photovoltaic concentrator. A.K.M. Zakzouk **I** p17
Performance evaluation of photovoltaic silicon cells under concentrated sunlight. A.K.M. Zakzouk, A. Mujahid and M.S. El-Shobokshy **I** p66

ENGINEERING ADMINISTRATION AND MANAGEMENT

A small company's approach to designing for profit. D.R. Stewart **A** p623
An inside view of 'Japan inc.'. A.W. Livingstone **A** p335
Catastrophe model of the engineering design process. S.A. Bergen **A** p181
China Light & Power's project strategy. R.W. Brooks **C** p222
Consultancy (Editorial). M.N. John **A** p341 **A** e622
Consultancy for industrial projects. J.E. Medley **A** p423
Design—the requirements of maintenance. **A** p646
Economics and technical consultancy. T.W. Berrie **A** p378
Environmental consultancy. R. Bidwell and R.H. Johnson **A** p371
Export competitiveness: a factor of management and/or design. (The first Lord Nelson of Stafford Lecture). Lord Nelson of Stafford **A** p626
Independent consulting engineering. G. Kennedy **A** p343
Management consultants and technology. L.J. Weaver **A** p365
Management for profit—by product design. **A** p642
Nationalised industries' overseas consultancies. S. Baker **A** p428
Project management for the design and supply of the power station mechanical and electrical plant. A.M. Brown **C** p236
Role of the building services engineering consultant. J.H. Gura **A** p413
Role of the consultant in mass transit systems. J.T. Edwards **A** p406
Role of the consultant in offshore oil industry projects. J.F. Head **A** p397
Role of the consulting engineer in hydro and pumped storage systems. G.B. Murdoch **A** p383
Role of the consulting engineer in quality assurance. D.G. Mann **A** p389
Scientific consultancy. N. Parkman **A** p355
Station layout and design of major mechanical auxiliary systems related to the turbine generator. E. Goldwag, P.A. Littlewood and B. McCann **C** p240
The consultant's role in project management. A.R. Parish and P.M. Middleton **A** p420
The right tool for the job. Improving export sales. R.S. Gaythorpe **A** p79
The role of the engineer and the future of Hong Kong. Lord Kadoorie **C** p218
University-based consultancy. M.A. Laughton **A** p362

EPITAXY

Band structure of α-Sn and Ge-Sn alloys. C.H.L. Goodman **I** d109

ERRORS AND ERROR ANALYSIS

Memory testing by linear checks. M. Karpovsky **E** p158
Performance of *M*-ary feedback communication systems. L.G. Kazovsky **F** p80
Predictive entropy coding for speech analysis. S.E. Hrvatin and J.W. Mark **F** p537
Relative performance of a simple MTI canceller selection rule. G.W.M. van Mierlo and H.F.A. Roefs **F** p433
Simple cyclic codes for burst errors. E. Okayto and T. Lesz **F** p153

FAULT LOCATION

Combined control and protection system for improved performance of HVDC links in the presence of AC faults. G. Galanos, N. Vovos and G. Giannakopoulos **C** p129
Microcomputer calculation of fault levels for operational interlocking. F. Psomadellis and D. Lidgate **C** p107
Natural decomposition of interconnected power systems for stability studies. M. Brucoli, F. Torelli and M. Trovato **C** p16

FEEDBACK

Complex sectors and multivariable on-axis and off-axis circle criteria. B. Kouvaritakis and R. Husband **D** p209
Functional bounds on the time response of multivariable nonlinear systems. J.O. Gray and D. Valsamis **D** p92
Novel feedback capacitor-type gauge. A.H. Falkner **A** p93
Performance of *M*-ary feedback communication systems. L.G. Kazovsky **F** p80

FERRITES AND FERROMAGNETICS

Microwave bandwidth of high-power ferrite devices biased between the main and subsidiary resonances. W.T. Nisbet, W.I. Hastings and J. Helszajn **H** p276
Mode charts of magnetised and demagnetised planar hexagonal resonators on ferrite substrates using finite elements. J. Helszajn and R.W. Lyon **H** p420
New FM tachotelemeter using ferrite orthogonal cores. H. Oka **A** p601

FERROMAGNETICS

Method of calculation of the transient electromagnetic field in ferromagnetic materials for the known vector of induction B on the surface. S. Wiak **A** p293 **A** e622
New FM tachotelemeter using ferrite orthogonal cores. H. Oka **A** p601

FIELD-EFFECT TRANSISTORS

DC and pulse-light illuminated optical responses of microwave GaAs-MESFET oscillators. H.J. Sun, R.J. Gutmann and J.M. Borrego **I** p31

FILTERS AND FILTERING

Analogue-to-digital transform to preserve the frequency-magnitude characteristics of all-pole filters. A.G. Bolton **G** p131
Application of gradient adaptive lattice filters to channel equalisation. P.M. Grant and M.J. Rutter **F** p473
Application of surface-acoustic-wave technology to burst-format spread-spectrum communications. M. Kowatsch **F** p734
Classification, generation and evaluation of actively compensated noninverting finite-gain amplifiers. P.B. Lopes and B.B. Bhattacharyya **G** p177
Computationally efficient circularly symmetric two-dimensional FIR filters. T. Saramäki **G** p46
Decimation technique for optimal data transfer in one- and two-dimensional FIR digital-filter implementations. A.H. Kayran, Y.C. Lim and S.R. Parker **G** p86
Design and implementation of digital wave filters using universal adaptor structures. H.M. Reekie, P. Petrie, J. Mavor, P.B. Denyer and C.H. Lau **F** p615
Design procedure for high-stability four-crystal single-sideband lattice filters with equiripple or maximally flat passbands and double attenuation poles at finite frequencies. J.K. Stevenson **G** p37
Designs of parasitic tolerant switched-capacitor filters using unity-gain buffers. R. Raut and B.B. Bhattacharyya **G** p103
Detailed analysis of nonidealities in MOS fully integrated active *RC* filters based on balanced networks. M. Banu and Y. Tsividis **G** p190
Direct synthesis of filter transfer functions. V.D. Pavlović **G** p156
High-speed single-board flexible hardware implementation of a wave digital filter. S.S. Lawson and S. Terplan **G** p17
Monitoring a deposition process using an extended adaptive Kalman filter. P. Atkinson and M. Nixon **D** p1
Multinotch logic-product polarisation suppression filters. A typical design example and its performance in a rain clutter environment. A.J. Poelman and J.R.F. Guy **F** p383
New general biquadratic active *RC* and switched-capacitor filters. P.V. Ananda Mohan, V. Ramachandran and M.N.S. Swamy **G** p51
New method for generating two-variable VSHPs and its application in the design of two-dimensional recursive digital filters with prescribed magnitude and constant group delay responses. M. Ahmadi and V. Ramachandran **G** p151
Optimum MSK-type receivers for CPM on Gaussian and Rayleigh fading channels. A. Svensson and C.E. Sundberg **F** p480
Overflow detection in a redundant residue number system. L.C. Tai and C.F. Chen **E** p97
Position, velocity and acceleration estimates from the noisy radar measurements. K.V. Ramachandra **F** p167
State-space noise calculation for single-operational-amplifier *RC* filters. D.T. Nguyen and B.D. Miller **G** p114
Synthesis of wideband lumped planar directional couplers. G. Argaman and A. Saad **H** p198
Transfer-function realisation of a class of doubly terminated two-variable lossless networks and their application in two-dimensional analogue and digital filter design. M.O. Ahmad, M. Ahmadi and V. Ramachandran **G** p67
Two-dimensional discrete filters using spatial integrators. L.T. Bruton and T.E. Strecker **G** e271

GENERATORS

AC/DC: one man's view. J.D. McColl **A** p38
Design features of the steam generator. J.S. Goldsack **C** p261
Determination of voltage-distortion factor for a network loaded with several DC motor drives. P. Crnošija **C** p81
Self-excited induction machine as a small low-cost generator. J.M. Elder, J.T. Boys and J.L. Woodward **C** p33
Station layout and design of major mechanical auxiliary systems related to the turbine generator. E. Goldwag, P.A. Littlewood and B. McCann **C** p240

HISTORY

Recent history of electricity supply in Hong Kong. W.F. Stones **C** p219

IMAGE PROCESSING

DC coefficient restoration in transform image coding. W.K. Cham and R.J. Clarke **F** p709
Digital line segment coding: A new efficient contour coding scheme. B.B. Chaudhuri and M.K. Kundu **E** p143
Electronic hardware implementation of the principal components transformation for multichannel image data. A.A.D. Canas **F** p761
Graph-theoretic approach to composite-source-model estimation for image coding. D.K. Mitrakos and A.G. Constantinides **F** p71
Hardware for real-time image processing. C.D. McIlroy, R. Linggard and W. Monteith **E** p223
Maximum entropy method in image processing. S.F. Gull and J. Skilling **F** p646
Parallel computations of optic flow in early image processing. B.F. Buxton, H. Buxton and B.K. Stephenson **F** p593
Pattern recognition for automated wire bonding. H.F. Li, C.M. Tsang and Y.S. Cheung **E** p19
Quad encoded display. D.J. Milford and P.J. Willis **E** p70
Review of high-speed sector-scanning sonar and its application to fisheries research. R.B. Mitson **F** p257
Sidescan sonar. M.L. Somers and A.R. Stubbs **F** p243
Transform coding of images using interleaved blocks. D.E. Pearson and M.W. Whybray **F** p466

INDUCTION MOTORS

Analyses of solid-rotor induction machines. B.J. Chalmers and A.M. Saleh **B** p15
Approximate equivalent circuit for small solid-rotor induction motors. I.A.M. Abdel Halim **B** p70
Design of phase-change two-speed windings for induction motors, using pole-amplitude modulation techniques. D. Grant **B** d232
Eddy-current starter for AC motors. M. Krichevsky, R. Rabinovici and B. Sharir **B** p13
Evaluation and comparison of two types of induction-motor drives. T.V. Avadhanlu **B** p105
Influence of rotor-bar stiffness on the critical speed of an induction motor with an aluminium squirrel cage. R. Belmans, W. Heylen, A. Vandenput and W. Geysen **B** p203
Modified current source inverter fed induction motor drive with reduced torque pulsations. K. Gopakumar, S. Sathiakumar, S.K. Biswas and J. Vithayathil **B** p159
Novel two-phase inverter-fed induction-motor drive. L.M.C. Mhango and G.K. Creighton **B** p99

INFORMATION AND COMMUNICATION THEORY

EMIS: a new kind of database. J.L. Sears **I** p38
Limits on the search rate of a pseudonoise sliding correlator synchroniser due to self-noise and decorrelation. R.F. Ormondroyd and V.E. Comley **F** p742

INSTRUMENTATION AND MEASURING SCIENCE

Control and instrumentation design. C. Henderson and J.C.F. White **C** p283
New FM tachotelemeter using ferrite orthogonal cores. H. Oka **A** p601
Theorems on power, mean and RMS values of uniformly sampled periodic signals. T.S. Rathore **A** p598

INSULATORS AND INSULATION

Developments in glass-fibre bridge and tunnel insulators for minimum clearances on British Railways. A. Bradwell and J.C.G. Wheeler **B** p1
Importance of preventing moisture ingress to polymeric insulators. A. Bradwell **B** p245

INTEGRATED CIRCUITS

CMOS Schmitt triggers. B.L. Dokić **G** p197
Gateway: a teaching exercise in gate-array technology. M.A. Jack and J.M. Robertson **A** p722
Some guiding structures for millimetre waves. F.A. Benson and F.J. Tischer **A** p429
Stability analysis of *RC* oscillator using CMOS transistors. B.L. Dokić and Z.V. Bundalo **G** p127
The business of VLSI. C.A.P. Foxell **A** p17
VLSI implementation of a 5-trit full adder. H.T. Mouftah and A.I. Garba **G** p214

INTEGRATED OPTICS

An optoelectronic integrated device including a laser and its driving circuit. H. Matsueda, T.P. Tanaka and H. Nakano **H** p299
Dependence of inplane scattering levels in Ti : $LiNbO_3$ optical waveguides on diffusion time. M.N. Armenise, C. Canali, M. De Sario, P. Franzosi, J. Singh, R.H. Hutchins and R.M. De La Rue **H** p295
Design and performance of a low crosstalk directional coupler switch. J.S. Wilkinson and M.G.F. Wilson **H** p304 **H** e410
Integrated optics (Editorial). P.J.R. Laybourn **H** p281
Integrated-optical circuits achieved by planar technology on silicon substrates: application to the optical spectrum analyser. S. Valette, J. Lizet, P. Mottier, J.P. Jadot, P. Gidon and S. Renard **H** p325
Planar optical demultiplexer with chirped grating for WDM fibre systems. T. von Lingelsheim **H** p290
Thermo-optic waveguide interferometric modulator/switch in glass. M. Haruna and J. Koyama **H** p322

INVERTERS

Fast modelling techniques for microprocessor-based optimal pulse-width-modulated control of current-fed inverter drives. S.R. Bowes and R. Bullough **B** p149
Modified current source inverter fed induction motor drive with reduced torque pulsations. K. Gopakumar, S. Sathiakumar, S.K. Biswas and J. Vithayathil **B** p159
Novel two-phase inverter-fed induction-motor drive. L.M.C. Mhango and G.K. Creighton **B** p99
PWM switching strategies for current-fed inverter drives. S.R. Bowes and R. Bullough **B** p195
Simulation study of DC transit systems with inverting substations. B. Mellitt, Z.S. Mouneimne and C.J. Goodman **B** p38
Steady-state performance of PWM inverter drives. S.R. Bowes and J. Clare **B** d231
Steady-state performance of current-fed pulse-width-modulated inverter drives. S.R. Bowes and R. Bullough **B** p113
Synthesis of wideband lumped planar directional couplers. G. Argaman and A. Saad **H** p198

IONISATION

Laboratory investigations of pulsed RF plasmas relevant to CW arc pluming at high-power aerials. Pt. 1: Critical breakdown under pulsed RF conditions. I.C. Plumb, D.C. Cook and S.C. Haydon **A** p145
Leader development in short point-plane gaps in compressed SF_6. I.D. Chalmers, O. Farish, A. Gilbert and J. Dupuy **A** p159
New analytical approach for computing DC unipolar corona losses. M. D'Amore, V. Daniele and G. Ghione **A** p318
Space-charge-limited electron current flow between coaxial cylinders and concentric spheres with ion production at an intermediate radius. C.B. Wheeler **A** p325

IONOSPHERIC PROPAGATION

Serial data transmission over HF radio links. W. Hodgkiss, L.F. Turner and J. Pennington **F** p107
Simplified estimation of ray-path mirroring height for HF radiowaves reflected from the ionospheric F-region. M. Lockwood **F** p117

LASERS

An optoelectronic integrated device including a laser and its driving circuit. H. Matsueda, T.P. Tanaka and H. Nakano **H** p299
Characteristics of double heterostructure $PbS_{1-x}Se_x$ diode lasers prepared by compositional interdiffusion. F.J. Bryant and A. Qadeer **I** p113
Dynamical thermal properties of stripe-geometry laser diodes. W. Nakwaski **I** p94
High-speed transient effects in quarternary lasers. I.D. Henning **H** p133
Improved acousto-optic laser scanner guidance system. M. Higgins, G. Titmuss and R. Martyn **H** p229
Limitations of a single-optical-fibre fluorimeter system due to background fluorescence. J.P. Dakin and A.J. King **H** p273
Optical bistability in twin-stripe lasers. I.H. White and J.E. Carroll **H** p309

LIGHTNING AND LIGHTNING PROTECTION

Development and field evaluation of a lightning earth-flash counter. R.B. Anderson, H.R. Van Niekerk, H. Kroninger and D.V. Meal **A** p118
Dynamic model of a surge arrester for computer calculation of lightning performance of substations. J.P. Bickford, R.M. Doone, W.M. Ritchie, M.S. Savic, T.A. Shami and C.T. Smith **C** p357
Some aspects of system modelling for the estimation of lightning performance of high voltage substations. J.P. Bickford and M.S. Savic **C** p204

LOAD AND VOLTAGE REGULATION

Determination of voltage-distortion factor for a network loaded with several DC motor drives. P. Crnošija **C** p81
Microprocessor-based adaptive load-frequency control. J. Kanniah, S.C. Tripathy, O.P. Malik and G.S. Hope **C** p121
Voltage control for an HVDC convertor. D. O'Kelly **C** p5

LOGIC

An algorithm for the partitioning of logic circuits. M.W. Roberts and P.K. Lala **E** p113
Microprogrammable sequential controller. D.M. Divan, G.C. Hancock, G.S. Hope and T.H. Barton **E** p201
Minimisation of Reed-Muller polynomials with fixed polarity. Y.Z. Zhang and P.J.W. Rayner **E** p177
VLSI implementation of a 5-trit full adder. H.T. Mouftah and A.I. Garba **G** p214

MAGNETIC DEVICES AND PROPERTIES

Eddy-current starter for AC motors. M. Krichevsky, R. Rabinovici and B. Sharir **B** p13
Finite-element analysis of the Xi-core levitator. C.B. Rajanathan, D.A. Lowther and E.M. Freeman **A** p62
Mode charts of magnetised and demagnetised planar hexagonal resonators on ferrite substrates using finite elements. J. Helszajn and R.W. Lyon **H** p420
Rheological behaviour of iron-silicone fluid mixtures used in magnetic slip clutches. G. Varadakumari and K.P.P. Pillai **A** p591
Viscous torque of disc-type magnetic fluid slip clutches. G. Varadakumari and K.A. Muraleedharan **A** p584

MAGNETIC FIELDS

Analytic separation of the factors contributing to the eddy-current loss in magnetically nonlinear steel. A.L. Bowden and E.J. Davies **B** d37
Three-dimensional eddy-current calculation using loop variables to represent magnetic vector potential in conducting regions. J.A.M. Davidson and M.J. Balchin **A** p577
Unified approach to problems in electromagnetism. J. Penman and J.R. Fraser **A** p55

MATHEMATICAL TECHNIQUES

A survey of one-coincidence sequences for frequency-hopped spread-spectrum systems. A.A. Shaar and P.A. Davies **F** p719
Application of modal analysis to a waveguide-cavity junction formed by an iris obstable. P.S. Kooi, M.S. Leong and H. Thng **H** p35
Circular waveguide bifurcation for asymmetric modes. H.W. Schilling and R.E. Collin **H** p397
Coaxial-line driven monopole on an electrically thick conducting cylinder over a ground plane. E.K. Yung and C.M. Butler **H** p54
Discussion of the finite-element modelling and performance of ring-shell projectors. B.A. Armstrong and G.W. McMahon **F** p275
Dual 4-port bidirectional network analyser with vector-null detection for the frequency range 1–800 MHz. D.A. Granville-George and D. Woods **A** p85
Fast algorithm for optimal weight computation in linear array pattern synthesis having null constraints. T.S. Ng and M.A. Magdy **H** p395
Finite-element analysis of the Xi-core levitator. C.B. Rajanathan, D.A. Lowther and E.M. Freeman **A** p62
Fuel-cost minimisation for both real- and reactive-power dispatches. K.Y. Lee, Y.M. Park and J.L. Ortiz **C** p85
Full-wave computed tomography. Pt. 1: Fundamental theory. R.H.T. Bates **A** p610
Higher-order mode interaction in planar periodic structures. N.V. Shuley **H** p129
Improved analysis of the harmonic and intermodulation performance of operational amplifiers. M.T. Abuelma'atti **G** p226
Infinite determinant method for stability analysis of periodic systems. S.K. Das and P.K. Rajagopalan **D** p189
Low-order modelling via discrete stability equations. C.P. Therapos **D** p248
Matrix sector functions and their applications to systems theory. L.S. Shieh, Y.T. Tsay and C.T. Wang **D** p171
Method of calculation of the transient electromagnetic field in ferromagnetic materials for the known vector of induction B on the surface. S. Wiak **A** p293 **A** e622
Modified and standard back-substitution fast-decoupled power flows compared to a Newton-like method for ill-conditioned systems. P.S. Bodger **C** p23
New method for determination of steady-state temperature rises of transformers. Z. Godec **A** p307
Number of one-coincidence sequence sets for frequency-hopping multiple access communication systems. A.A. Shaar, C.F. Woodcock and P.A. Davies **F** p725
Numerical inversion of multidimensional Laplace transforms via block-pulse functions. C. Hwang, T.-Y. Guo and Y.-P. Shih **D** d268
On using orthogonal functions with singular systems. S.L. Campbell **D** p267
Power-system state estimator availability analysis. E.P.M. Brown and H.R. Sirisena **C** p117
Receiving analysis of the shaped cylindrical reflector antenna with an array feed. G. Morris **H** p123
Spectral analysis of short-time biomedical data using adaptive filters. J. Braham Levy and D.A. Linkens **A** p164
Two-dimensional discrete Fourier transform with small multiplicative complexity using number theoretic transforms. O.R. Hinton and R.A. Saleh **G** p234

MATRIX ALGEBRA

Algebra-geometric approach for the model reduction of large-scale multivariable systems. L.S. Shieh and Y.T. Tsay **D** p23
Controller synthesis of optimal sensitivity: multivariable case. B.-S. Chen **D** p47
Pole assignment in decentralised systems: a structural approach. F.J. Evans and M. Kruser **D** p229
Square-root solution for the discrete-time Lyapunov equation. K.V. Fernando and H. Nicholson **D** p107

MEASUREMENT AND MEASURING

Microprocessor system for measuring frequency spectra and computing transient responses of a power apparatus. S. Cristina, M. D'Amore and M. Salerno **A** p312

New method for determination of steady-state temperature rises of transformers. Z. Godec A p307
Novel feedback capacitor-type gauge. A.H. Falkner A p93
Rheological behaviour of iron-silicone fluid mixtures used in magnetic slip clutches. G. Varadakumari and K.P.P. Pillai A p591

METAL-INSULATOR-SEMICONDUCTOR STRUCTURES

Charge control model for switching transients of metal-tunnel oxide-semiconductor thyristor. A.K. Duong and A.G. Nassibian I p135
Method for evaluation of hysteretic interface properties and their application to anodised InSb MIS diodes. T. Nakagawa and H. Fujisada I p51

METAL-OXIDE-SEMICONDUCTOR STRUCTURES

CMOS Schmitt triggers. B.L. Dokić G p197
Charge control model for switching transients of metal-tunnel oxide-semiconductor thyristor. A.K. Duong and A.G. Nassibian I p135
Etch-induced MOS guard-ring-protected Schottky-barrier diodes. R.N. Sreenath, M. Mohan Chandra and G. Suryan I p63
High-precision MOS current mirror. M. Akiya and S. Nakashima I p170

MICROPROCESSORS

A review of synchronisation and matching in fault-tolerant systems. W.R. Moore and N.A. Haynes E p119
Electronic control of small hydroelectric schemes using a microcomputer. S. Kormilo and P. Robinson E p132
Fast modelling techniques for microprocessor-based optimal pulse-width-modulated control of current-fed inverter drives. S.R. Bowes and R. Bullough B p149
Memory interference in multimicroprocessor systems with a time-shared bus. P.A. Grasso, T.S. Dillon and K.E. Forward E p61
Microprocessor control of a variable reluctance motor. P.H. Chappell, W.F. Ray and R.J. Blake B p51
Microprocessor system for measuring frequency spectra and computing transient responses of a power apparatus. S. Cristina, M. D'Amore and M. Salerno A p312
Microprogrammable sequential controller. D.M. Divan, G.C. Hancock, G.S. Hope and T.H. Barton E p201
Multiprocessors and distributed computing (Editorial). F.K. Hanna and E.L. Dagless E p37
Multiuser microprocessor development system for undergraduate training. J. Dunlop A p170
Pattern recognition for automated wire bonding. H.F. Li, C.M. Tsang and Y.S. Cheung E p19
Shared memories in the CYBA-M multiprocessor. E.L. Dagless, M.D. Edwards and J.T. Proudfoot E e155
Software realisation of synchronisation and firing control of thyristor convertors. S.K. Tso and F.W. Pu B p141

MICROSCOPES

Acoustic microscopy: present and future. H.K. Wickramasinghe A p282

MICROWAVE CIRCUITS AND NETWORKS

Cutoff-taper performance of substrate-edge excited optoelectronic switches. W. Platte I p45
DC and pulse-light illuminated optical responses of microwave GaAs-MESFET oscillators. H.J. Sun, R.J. Gutmann and J.M. Borrego I p31
Real-time six-port reflectometer. G.F. Luff, P.J. Probert and J.E. Carroll H p186

MICROWAVE COMPONENTS

Accurate transmission-line model for the rectangular microstrip antenna. H. Pues and A. Van de Capelle H p334
Bulk acoustic microwave delay lines: design, fabrication and performance. P. Defranould A p216
Calibration of a precision three-port coaxial junction: a new component for immittance standardisation. D. Woods A p302
Dual 4-port bidirectional network analyser with vector-null detection for the frequency range 1–800 MHz. D.A. Granville-George and D. Woods A p85
Dualband horn with inherent isolation between its transmit and receive ports. L. Shafai, A. Ittipiboon, E. Bridges and F. Hyjazie H p143
Finite-element analysis of shielded microstrip disc resonator. M.S. Leong, P.S. Kooi and A.L. Satya Prakash H p126
Five-way gyrotron power combiner. Q.L. Hu, I.G. Gosling and A.H.W. Beck H p65
Hybrid-mode analysis of a broadside-coupled microstrip line. K. Kawano H p21
Microwave cavity of improved design for gas breakdown studies and its application to helium-oxygen mixtures. D. Smith, W.R. Bell and L.J. Auchterlonie H p235
Millimetre-wave hybrid dielectric-microstrip antenna array. J.R. James, G. John and C.M. Hall H p341
Mode charts of magnetised and demagnetised planar hexagonal resonators on ferrite substrates using finite elements. J. Helszajn and R.W. Lyon H p420
Monte-Carlo particle model study of a microwave photodetector. C. Moglestue I p103
New approach to analyse strip- and microstrip-like transmission lines with anisotropic substrates having a tilted optical axis. B. Bhat and S.K. Koul H p191 H e289
New power-density calculation method by three-dimensional finite elements. M. de Pourcq H p411
Optimal use of redundant information in multiport reflectometers by statistical methods. B.A. Herscher and J.E. Carroll H p25
Wide-gap re-entrant cavity resonators for 900–1500 MHz. D.P. Howson H p423

MICROWAVE MEASUREMENTS

Finite-element analysis of shielded microstrip disc resonator. M.S. Leong, P.S. Kooi and A.L. Satya Prakash H p126
Measurement of radio-frequency and microwave fields by nonresonant perturbation. D.V. Land H p1
Microwave bandwidth of high-power ferrite devices biased between the main and subsidiary resonances. W.T. Nisbet, W.I. Hastings and J. Helszajn H p276
Microwave cavity of improved design for gas breakdown studies and its application to helium-oxygen mixtures. D. Smith, W.R. Bell and L.J. Auchterlonie H p235
New power-density calculation method by three-dimensional finite elements. M. de Pourcq H p411
Optically coupled probe for microwave near-field measurements. M. Rousseau and P.S. Excell A p74
Real-time six-port reflectometer. G.F. Luff, P.J. Probert and J.E. Carroll H p186
Wide-gap re-entrant cavity resonators for 900–1500 MHz. D.P. Howson H p423

MICROWAVE SYSTEMS

Crosspolarisation behaviour of series-fed microstrip linear arrays. P.S. Hall and J.R. James H p247
Dispersion in unilateral fin lines with two dielectric layers. H.C.C. Fernandes and A.J. Giarola H p139
Ignition of flammable gas mixtures by X-band microwave discharges. P.S. Excell A p103
Microwave bandwidth of high-power ferrite devices biased between the main and subsidiary resonances. W.T. Nisbet, W.I. Hastings and J. Helszajn H p276
New derivation for the rough-surface reflection coefficient and for the distribution of sea-wave elevations. A.R. Miller, R.M. Brown and E. Vegh H p114
New power-density calculation method by three-dimensional finite elements. M. de Pourcq H p411
New procedure for near-field measurements of microwave antennas without anechoic environments. J.F.R. Pereira, A.P. Anderson and J.C. Bennett H p351
Real-time six-port reflectometer. G.F. Luff, P.J. Probert and J.E. Carroll H p186
Theoretical basis for the design of the radially stratified dielectric-loaded cavities used in miniaturised atomic frequency standards. T. Sphicopoulos, L.-G. Bernier and F. Gardiol H p94
Wide-gap re-entrant cavity resonators for 900–1500 MHz. D.P. Howson H p423

MODELLING

A new approach to reduced-order modelling. K. Warwick D p74
Algebra-geometric approach for the model reduction of large-scale multivariable systems. L.S. Shieh and Y.T. Tsay D p23
Computer-aided linear modelling of high-frequency bipolar transistors. O.P.D. Cutteridge and Y.S. Zhang G p252
Low-order modelling via discrete stability equations. C.P. Therapos D p248
Method of analysis for discrete-time buffers with randomly interrupted arrival stream. H. Bruneel E p187
Parameter estimation from noncontiguous data. P.J. Gawthrop D p261
Parameter estimation of system dynamics with modulation-type noise—application to the modelling of the dynamic relationship between the EMG and force transients in muscle. P.J. Lago and N.B. Jones D p221
Simplified technique of model order reduction with performance verification by fast digital simulation. A.S. Morris D p69
Some aspects of system modelling for the estimation of lightning performance of high voltage substations. J.P. Bickford and M.S. Savic C p204

MODULATION

14/11 GHz, 120 Mbit/s regenerative satellite transponder. G. Ohm F p442
Adaptive differential pulse-code modulation with adaptive bit allocation. E.D. Frangoulis, K. Yoshida and L.F. Turner F p542
Data transmission over UHF fading mobile radio channels. A.J. Bateman and J.P. McGeehan F p364 F d767
M-ary continuous phase frequency shift keying with modulation index $1/M$. N. Ekanayake F p173 F e694
Phase modulator with low nonlinear distortion. M.R. Temerinac and A.S. Marinčić G p161
Serial data transmission over HF radio links. W. Hodgkiss, L.F. Turner and J. Pennington F p107
Zero-crossing-based approximate demodulation of wide-deviation FM. S.K. Ray F p47

MOTORS

Electrical variable-speed drives. B.L. Jones and J.E. Brown A p516
Generalised analysis for steady-state characteristics of DC commutatorless motors. Y. Takeda, S. Morimoto and T. Hirasa B e14
Numerical speed control of a current-fed asynchronous machine by measurement of supply voltages. B. de Fornel, J.L. Bach, J.C. Hapiot and M. Pietrzak-David B p165
Operating principles for hidden-link convertor drive. P.H. Chappell, R.M. Davis and R.J. Blake B p237

MULTIVARIABLE CONTROL SYSTEMS

A simple adaptive observer for a class of multi-output systems. N. Hori, P.N. Nikiforuk and K. Kanai D p142
Complex sectors and multivariable on-axis and off-axis circle criteria. B. Kouvaritakis and R. Husband D p209
Controller synthesis of optimal sensitivity: multivariable case. B.-S. Chen D p47
Model reduction of linear multivariable control systems via frequency matching. L.R. Pujara and K.S. Rattan D p243

NETWORKS

Architectural approach to alternate low-level primitive structures (ALPS) for acoustic signal processing. Y.S. Wu, A.G. Constantinides, T.E. Curtis and L.J. Wu F p327
Common-access channel network algorithm. A. Cantoni, R.J. Evans and B.J. Cook F p194
Control ordered sonar hardware (COSH)—a hardware based signal processing graph implementation. T.E. Curtis, J.T. Wickenden and A.G. Constantinides F p384
Distributed routing algorithm for a circuit/packet switching network. W. Yu, J.C. Majithia and J.W. Wong F p751
Dual 4-port bidirectional network analyser with vector-null detection for the frequency range 1–800 MHz. D.A. Granville-George and D. Woods A p85

Efficient computation and minimisation of root sensitivities of analogue and digital networks. N.K. Jain and K. Singhal G p245
Electrical network analogue for determining the optimal flows in multiterminal communication networks. B.V. Odintsov and A.C. Davies G p171
Fibre-optic local-area network with arbitrary topology. H.K. Pung and P.A. Davies H p77
Heuristic network partitioning algorithm using the concept of loop index. J. Rutkowski G p203
Quasi cut-through: New hybrid switching technique for computer communication networks. M. Ilyas and H.T. Mouftah E p1
Signal-flow graph analysis of SC networks. G.S. Moschytz and U.W. Brugger G p72
Synthesis of wideband lumped planar directional couplers. G. Argaman and A. Saad H p198
Transfer-function realisation of a class of doubly terminated two-variable lossless networks and their application in two-dimensional analogue and digital filter design. M.O. Ahmad, M. Ahmadi and V. Ramachandran G p67

NOISE AND INTERFERENCE

Adaptive adjustment of receiver for distorted digital signals. A.P. Clark and S.F. Hau F p526
Fast start-up channel estimation. A.P. Clark, Z.C. Zhu and J.K. Joshi F p375
Position, velocity and acceleration estimates from the noisy radar measurements. K.V. Ramachandra F p167
QPSK-direct-phase regenerator with imperfect reference carrier. A. Riris F p15
State-space noise calculation for single-operational-amplifier *RC* filters. D.T. Nguyen and B.D. Miller G p114
Threshold detection of CPFSK in non-Gaussian noise. K.R. Raveendra and R. Srinivasan F p397

NONLINEAR SYSTEMS

Complex sectors and multivariable on-axis and off-axis circle criteria. B. Kouvaritakis and R. Husband D p209
Functional bounds on the time response of multivariable nonlinear systems. J.O. Gray and D. Valsamis D p92

NUMERICAL ANALYSIS

Eigenfunction solution of a class of TEM transmission line. T.K. Seshadri and K. Rajaiah H p279 H e289
Finite-element analysis of shielded microstrip disc resonator. M.S. Leong, P.S. Kooi and A.L. Satya Prakash H p126
Low-frequency approach to the problem of a horizontal wire antenna above an imperfect ground. A. Karwowski H p214
Rigorous analysis of an embedded optical waveguide. T. Miyamoto and K. Yasuura H p45

OPTICAL FIBRES

Analysis of single-mode fused tapered fibre couplers. F. de Fornel, C.M. Ragdale and R.J. Mears H p221
Disperion-induced nonreciprocal effects in phase-nulling fibre gyroscopes. A.J. Barlow, M.S. Dye and B.T. Trayner H p117
Fibre-optic local-area network with arbitrary topology. H.K. Pung and P.A. Davies H p77
HHI service integrated optical broadband communications system: results of a long-time operation and review. H.W. Kreutzer and W. Werner H p87
High-speed optical-fibre ring network with a register insertion access protocol. F. Abdul-Ghani and P.A. Davies H p83
Limitations of a single-optical-fibre fluorimeter system due to background fluorescence. J.P. Dakin and A.J. King H p273
Optical-fibre thermometer for medical use. A.M. Scheggi, M. Brenci, G. Conforti and R. Falciai H p270
Optically coupled probe for microwave near-field measurements. M. Rousseau and P.S. Excell A p74
Planar optical demultiplexer with chirped grating for WDM fibre systems. T. von Lingelsheim H p290
Simple and sensitive *in situ* algae fluorescence sensor based on fibre optics. T. Lund H p49

OPTICAL PROCESSING

Integrated-optical circuits achieved by planar technology on silicon substrates: application to the optical spectrum analyser. S. Valette, J. Lizet, P. Mottier, J.P. Jadot, P. Gidon and S. Renard H p325

OPTICAL SYSTEMS

Design and performance of a low crosstalk directional coupler switch. J.S. Wilkinson and M.G.F. Wilson H p304 H e410
High-speed transient effects in quarternary lasers. I.D. Henning H p133
Optical bistability in twin-stripe lasers. I.H. White and J.E. Carroll H p309
Optical short-range radar for level control measurement. G. Kompa H p159

OPTICS

An optoelectronic integrated device including a laser and its driving circuit. H. Matsueda, T.P. Tanaka and H. Nakano H p299
Analysis of subreflectors for dual reflector antennas. N.C. Albertsen and K. Pontoppidan H p205
Design and performance of a low crosstalk directional coupler switch. J.S. Wilkinson and M.G.F. Wilson H p304 H e410
Diffraction coefficients for a curved edge with soft and hard boundary conditions. A.H. Serbest H p383
Guided wave coupling in integrated-optic gratings: normal incidence. J. Van Roey, B. Denturck and P.E. Lagasse H p282
Improved acousto-optic laser scanner guidance system. M. Higgins, G. Titmuss and R. Martyn H p229
Integrated optics (Editorial). P.J.R. Laybourn H p281
Integrated-optical circuits achieved by planar technology on silicon substrates: application to the optical spectrum analyser. S. Valette, J. Lizet, P. Mottier, J.P. Jadot, P. Gidon and S. Renard H p325
Millimetre-wave Gaussian beam-mode optics and corrugated feed horns. R.J. Wylde H p258
Optical bistability in twin-stripe lasers. I.H. White and J.E. Carroll H p309
Reactive reflectors. Yi-Lin Chen and Y.T. Lo H p263
Rigorous analysis of an embedded optical waveguide. T. Miyamoto and K. Yasuura H p45
Study of dual-offset reflector antenna with dielectric cone feed. A.D. Olver, P.J.B. Clarricoats and E.E. Voglis H p69

OPTIMAL CONTROL

Design of optimal observers for structural control. M. Abdel-Rohman D p158
Efficient algorithm for the optimal control of interconnected stochastic systems. A.K. Mahalanabis and G. Ray D p99
Multipurpose controller synthesis in LQG optimal systems. B.S. Chen and W.J. Wang D p182
Optimal controllers for bank-to-turn CLOS guidance. D.J. Roddy, G.W. Irwin and H. Wilson D p109
Optimal variable-structure controller for DC motor speed control. Yuan-Yih Hsu and Wah-Chun Chan D p233
Response improvements in industrial DC drives derived from optimal analysis. B.J. Cardwell and C.J. Goodman B p91
Stochastic optimal control and its connection with estimation. R. Gessing D p165
Time-optimal control algorithm for microprocessor with asymmetrical bounds. I. Serra, L. Moreno and E. Luque D p238

OPTIMISATION

Application of Gram–Schmidt algorithm to optimum radar signal processing. A. Farina and F.A. Studer F p139

OPTOELECTRONICS

An optoelectronic integrated device including a laser and its driving circuit. H. Matsueda, T.P. Tanaka and H. Nakano H p299
Cutoff-taper performance of substrate-edge excited optoelectronic switches. W. Platte I p45
Frequency modulation of Impatt diodes by optical illumination. C. Chiu and J. Freyer I p28
Influence of coupled plasmon-polar optical phonon modes on the mobility of electrons in GaAs. C. Moglestue I p188
Visual indication of locally varying photoconductivity. W. Platte I p77

OSCILLATORS

DC and pulse-light illuminated optical responses of microwave GaAs-MESFET oscillators. H.J. Sun, R.J. Gutmann and J.M. Borrego I p31
Design of very-low-frequency digital oscillators. J.I. Acha, J. Payán-Somet and A. Civit G p93
High-frequency design of sinusoidal oscillators realised with operational amplifiers. J.L. Huertas, A. Rodriguez-Vazquez and B. Perez-Verdu G p137
Injection-locked self-oscillating system as a one-port with controlled parameters. V.N. Damgov G p1
Nonlinear resonance and parametric phenomena in a complicated oscillating circuit. V.N. Damgov G p24
Stability analysis of *RC* oscillator using CMOS transistors. B.L. Dokić and Z.V. Bundalo G p127

OVERHEAD LINES

Overhead lines—some aspects of design and construction. J.F. Adam, J. Bradbury, W.R. Charman, G. Orawski and M.J. Vanner C p149

OVERVOLTAGES

Dynamic model of a surge arrester for computer calculation of lightning performance of substations. J.P. Bickford, R.M. Doone, W.M. Ritchie, M.S. Savic, T.A. Shami and C.T. Smith C p357

PERTURBATION THEORY

Measurement of radio-frequency and microwave fields by nonresonant perturbation. D.V. Land H p1
Robust stability of diagonally dominant systems. L.F. Yeung and G.F. Bryant D p253
Singular perturbation method for Kalman filter in discrete systems. A. Kailasa Rao and D.S. Naidu D p39

PHASING AND PHASE CONTROL

QPSK-direct-phase regenerator with imperfect reference carrier. A. Riris F p15

PICTURE PROCESSING AND PATTERN RECOGNITION

Quad encoded display. D.J. Milford and P.J. Willis E p70

PLASMAS

Laboratory investigations of RF plasmas relevant to CW arc pluming at high-power aerials. Pt. 2: Relevance of scale-model studies based on pulsed RF techniques. D.C. Cook and S.C. Haydon A p153
Laboratory investigations of pulsed RF plasmas relevant to CW arc pluming at high-power aerials. Pt. 1: Critical breakdown under pulsed RF conditions. I.C. Plumb, D.C. Cook and S.C. Haydon A p145

POLES AND ZEROS

Pole assignment in decentralised systems: a structural approach. F.J. Evans and M. Kruser D p229

POLYNOMIALS

Minimisation of Reed-Muller polynomials with fixed polarity. Y.Z. Zhang and P.J.W. Rayner E p177

POWER CONVERSION

Power conversion and control with zero AC current harmonics by means of a time-variable transformer. S. Singer G p147

POWER ELECTRONICS

Electrical variable-speed drives. B.L. Jones and J.E. Brown A p516

POWER SYSTEM PROTECTION

Discrete analysis of load-frequency control problem. A. Kumar and O.P. Malik C p144
Dynamic model of a surge arrester for computer calculation of lightning performance of substations. J.P. Bickford, R.M. Doone, W.M. Ritchie, M.S. Savic, T.A. Shami and C.T. Smith C p357
Experimental investigation of selfsustained oscillations in stripe-geometry DH lasers. B.S. Poh I p21
Method of using data from computer simulations to test protection equipment. A. Williams and R.H.J. Warren C p349
Semiconductor fault-current limiters Pt. 1: Problems connected with and possible schemes for implementing short-circuit current limitation in power systems. S. Palanichamy and P. Chinnasamy C p94
Semiconductor fault-current limiters Pt. 2: Investigations on a semiconductor-diode fault-current limiter for use in power systems. S. Palanichamy and P. Chinnasamy C p98
Semiconductor fault-current limiters Pt. 3: Investigations on microprocessor-based thyristor fault-current limiter for use in power systems. S. Palanichamy and P. Chinnasamy C p103

POWER SYSTEMS AND PLANT

Castle Peak B Power Station, Hong Kong. (Editorial). H. Heimer C p216
Computer modelling of series-compensated EHV transmission systems. R.K. Aggarwal, A.T. Johns and A. Kalam C p188
Computers in power systems. D. Lidgate C p113
Control and instrumentation of large nuclear power stations. A review of future trends. M.W. Jervis A p481
Design features of the coal and ash handling plant. G.R. Govan and P.A. Littlewood C p268
Design features of the steam generator. J.S. Goldsack C p261
Design features of the turbine-generator plant. R.B. Bennett and F.R. Harris C p252
Design of the electrical power system. J. Wilson and G. Tuft C p275
Developments in the simulation of long-distance single-pole-switched EHV systems. A.T. Johns and A.M. Al-Rawi C p67
Discrete analysis of load-frequency control problem. A. Kumar and O.P. Malik C p144
Eighth power systems computation conference (PSCC). B.J. Cory and D.C. Macdonald C p363
Fuel-cost minimisation for both real- and reactive-power dispatches. K.Y. Lee, Y.M. Park and J.L. Ortiz C p85
IEEE summer power meeting. P.G. McLaren C p362
Microcomputer calculation of fault levels for operational interlocking. F. Psomadellis and D. Lidgate C p107
Microprocessor-based adaptive load-frequency control. J. Kanniah, S.C. Tripathy, O.P. Malik and G.S. Hope C p121
Modified and standard back-substitution fast-decoupled power flows compared to a Newton-like method for ill-conditioned systems. P.S. Bodger C p23
Natural decomposition of interconnected power systems for stability studies. M. Brucoli, F. Torelli and M. Trovato C p16
Power-system state estimator availability analysis. E.P.M. Brown and H.R. Sirisena C p117
Role of the consulting engineer in hydro and pumped storage systems. G.B. Murdoch A p383
Selection of transmission circuit models for power-system transient studies. J.R. Smith and W.W. Bell C p1
Simulation study of DC transit systems with inverting substations. B. Mellitt, Z.S. Mouneimne and C.J. Goodman B p38
Some art, some science and a lot of feedback. R.N.G. Burbridge A p24
Station layout and design of major mechanical auxiliary systems related to the turbine generator. E. Goldwag, P.A. Littlewood and B. McCann C p240

POWER TRANSMISSION AND DISTRIBUTION

400 kV transmission system, aspects and problems. P.W. Read and D.M. Barr C p292
Castle Peak B Power Station, Hong Kong. (Editorial). H. Heimer C p216
China Light & Power's project strategy. R.W. Brooks C p222
Eighth power systems computation conference (PSCC). B.J. Cory and D.C. Macdonald C p363
IEEE summer power meeting. P.G. McLaren C p362
Influence analysis of the shielding grid parameters on right-of-way and on corona effects of an EHV 3-phase transmission line. S. Cristina C p333
Jamuna River 230 kV crossing, Bangladesh—Pt. 1: Design. J.A. Chandler, L.W. Hinch, D.A. Hughes, D.M. McDowell, P.W. Rowe and A.B. Wood C p303
Jamuna River 230 kV crossing, Bangladesh—Pt. 2: Construction. J.A. Chandler, L.W. Hinch, R.I. Fair, D.A. Hughes, J. Peraino and P.W. Rowe C p319
Project management for the design and supply of the power station mechanical and electrical plant. A.M. Brown C p236
Radio frequency characteristics of HVDC convertor station components. R.V. DeVore, S. Pleasants and R. Caldecott C p61
Selection of transmission circuit models for power-system transient studies. J.R. Smith and W.W. Bell C p1

PRODUCTION ENGINEERING

Export competitiveness: a factor of management and/or design. (The first Lord Nelson of Stafford Lecture). Lord Nelson of Stafford A p626
Management for profit—by product design. A p642

PROJECT AND PRODUCTION ENGINEERING

Consultancy for industrial projects. J.E. Medley A p423
Economics and technical consultancy. T.W. Berrie A p378
Independent consulting engineering. G. Kennedy A p343
Management for profit—by product design. A p642
Role of the consultant in offshore oil industry projects. J.F. Head A p397
Role of the consulting engineer in quality assurance. D.G. Mann A p389
The consultant's role in project management. A.R. Parish and P.M. Middleton A p420

PULSE-CODE MODULATION

Adaptive differential pulse-code modulation with adaptive bit allocation. E.D. Frangoulis, K. Yoshida and L.F. Turner F p542

RADAR AND RADIONAVIGATION

Application of Gram–Schmidt algorithm to optimum radar signal processing. A. Farina and F.A. Studer F p139
Formulas for measuring radar ECCM capability. L. Nengjing F p417
Generating analogue FM pulses using a 1 bit digital technique. J.A. Johnston F p349
Inexpensive multipurpose airborne surveillance radar. P.D.L. Williams F p507
Investigation of a radar site effect. P. Lewis F p695
Multiple open-loop interference canceller for a rotating search radar. J.C. Old F p203
Nonlinear polarisation-vector translation in radar systems. A promising concept for real-time polarisation-vector signal processing via a single-notch polarisation suppression filter. A.J. Poelman and J.R.F. Guy F p451
Optical short-range radar for level control measurement. G. Kompa H p159
Performance of space-based radar in the presence of earth clutter. J.S. Bird and A.W. Bridgewater F p491
Position, velocity and acceleration estimates from the noisy radar measurements. K.V. Ramachandra F p167
Radar mortar locator development in the UK: the first 30 years. J.G. Milner F p233
Relative performance of a simple MTI canceller selection rule. G.W.M. van Mierlo and H.F.A. Roefs F p433
Weibull-distributed weather clutter in the frequency domain. M. Sekine, T. Musha, Y. Tomita, T. Hagisawa, T. Irabu and E. Kiuchi F p549

RADIATION

Effects of mutual coupling in conical horn arrays. P.J.B. Clarricoats, S.M. Tun and C.G. Parini H p165
Performance of offset reflector antennas with array feeds. P.J.B. Clarricoats, S.M. Tun and R.C. Brown H p172

RADIO-WAVE PROPAGATION
(incl. Ionospheric and Tropospheric)

Evaluation of a site diversity model for satellite communications systems. D.V. Rogers and J.E. Allnutt F p501
Experiment with spread spectrum modulation on an HF channel. R. Skaug F p87
Serial data transmission over HF radio links. W. Hodgkiss, L.F. Turner and J. Pennington F p107
Simplified estimation of ray-path mirroring height for HF radiowaves reflected from the ionospheric F-region. M. Lockwood F p117

RADIOCOMMUNICATION

An analysis of quasi-synchronous AM mobile radio operation and recommended design parameter values. R.E. Fudge F p156
Combined mobile telephone and dispatch services in a cellular land-mobile radio system. M. McDonnell and N.D. Georganas F p357
Comparison between time-compression multiplexing and frequency-division multiplexing over narrowband radio systems. R.J. Holbeche and R.T. Mannings F p130
Data transmission over UHF fading mobile radio channels. A.J. Bateman and J.P. McGeehan F p364 F d767
On the response of a towed array to the acoustic field in shallow water. M.J. Buckingham F p298
The performance of combined feedforward AGC and phase-locked AFC in a single sideband mobile radio receiver. J.P. McGeehan and J.P.H. Sladen F p437
Transient probability response of cycle slip occurrence in the PSK-TDMA carrier recovery. T. Fujino, Y. Umeda and E. Yamazaki F p729

RADIONAVIGATION

Study of the relative sonar performance of incoherent and coherent processing against echo fading in shallow water. J.F. Dix and R.F. Palmer F p308

RAILWAY ELECTRIFICATION AND TRANSPORTATION

AC/DC: one man's view. J.D. McColl A p38
Developments in glass-fibre bridge and tunnel insulators for minimum clearances on British Railways. A. Bradwell and J.C.G. Wheeler B p1
Electrification of Taiwan main-line railway from Keelung to Kaohsiung. S.H. Case, A.M. Hayes, J.H. McNeil, R.E. Morrison and E.E. Riches B d226
Importance of preventing moisture ingress to polymeric insulators. A. Bradwell B p245
Numerical and CAD techniques applied to overhead equipment for electric railways. M. Rothman and A.D. Suddards B p170
Probabilistic representation of harmonic currents in AC traction systems. R.E. Morrison and A.D. Clark B p181
Remote control of traction power over two wires. C.R. Avery and G. Crawshaw B p133
Rheostatic stabilisation of a chopper-controlled brake for traction drives. J. Allan, B. Mellitt and M.H. Pong B p190
Simulation study of DC transit systems with inverting substations. B. Mellitt, Z.S. Mouneimne and C.J. Goodman B p38
Switched reluctance motor drives for rail traction: relative assessment. P.St.-J.R. French B p209
Track-recording techniques used on British Rail. R.B. Lewis B p73

RECEIVERS

Correlation systems in radio astronomy and related fields. P.C. Egau F p32
Improved acousto-optic laser scanner guidance system. M. Higgins, G. Titmuss and R. Martyn H p229
Optimum MSK-type receivers for CPM on Gaussian and Rayleigh fading channels. A. Svensson and C.E. Sundberg F p480

RELAYS

Method of using data from computer simulations to test protection equipment. A. Williams and R.H.J. Warren C p349

RELIABILITY

Reliability analysis of hybrid redundancy systems. I. Koren and E. Shalev E p31

RELUCTANCE MOTORS

Microprocessor control of a variable reluctance motor. P.H. Chappell, W.F. Ray and R.J. Blake B p51
New method for measuring X_d and X_q based on the P-Q diagram of the lossy salient-pole machine. A.Ah. Fock and P.M. Hart B p259
Switched reluctance motor drives for rail traction: relative assessment. P.St.-J.R. French B p209

REVIEWS OF PROGRESS

Development and field evaluation of a lightning earth-flash counter. R.B. Anderson, H.R. Van Niekerk, H. Kroninger and D.V. Meal A p118
Electronic aids for blind persons: an interdisciplinary subject. L. Kay A p559
HHI service integrated optical broadband communications system: results of a long-time operation and review. H.W. Kreutzer and W. Werner H p87
Past, present and future of the computer field. M.V. Wilkes E p106
Radar mortar locator development in the UK: the first 30 years. J.G. Milner F p233
Review of some recent advances in quantitative ultrasonic NDT. L.J. Bond, M. Punjani and N. Saffari A p265

ROBOTICS

Computer-aided design of nonlinear controllers for torque controlled robot arms. M. Sahba and D.Q. Mayne D p8

SATELLITE LINKS AND SPACE COMMUNICATION

14/11 GHz, 120 Mbit/s regenerative satellite transponder. G. Ohm F p442
Advanced domestic digital satellite communications systems experiments. A. Iso, T. Izumisawa and N. Ishida F p92
Evaluation of a site diversity model for satellite communications systems. D.V. Rogers and J.E. Allnutt F p501
Performance of space-based radar in the presence of earth clutter. J.S. Bird and A.W. Bridgewater F p491

SCHOTTKY-BARRIER DEVICES

Dependence of the Schottky barrier height of GaP/polymer/Au diodes on the area per carboxylic acid group. C.S. Winter, R.H. Tredgold, P. Hodge and E. Khoshdel I p125
Etch-induced MOS guard-ring-protected Schottky-barrier diodes. R.N. Sreenath, M. Mohan Chandra and G. Suryan I p63
SVG guard-ring Al-Ti-Si Schottky diode for high-speed LSI applications. T. Fukushima, K. Ueno, T. Fukumoto and K. Tanaka I p59

SEMICONDUCTOR DEVICES AND MATERIALS

Band structure of α-Sn and Ge-Sn alloys. C.H.L. Goodman I d109
Calculation of amplification factor μ of static induced transistor. X. ChengKun I p87
Characteristics of double heterostructure $PbS_{1-x}Se_x$ diode lasers prepared by compositional interdiffusion. F.J. Bryant and A. Qadeer I p113
Charge control model for switching transients of metal-tunnel oxide-semiconductor thyristor. A.K. Duong and A.G. Nassibian I p135
Computer-aided thermal analysis of reverse-biased PIN diodes. V. Ramamurthy, K.N. Bhat and D. Kakati I p82
Cutoff-taper performance of substrate-edge excited optoelectronic switches. W. Platte I p45
Distortion in CMOS operational amplifier circuits. B. Wu and J. Mavor I p129
Dynamical thermal properties of stripe-geometry laser diodes. W. Nakwaski I p94
High-precision MOS current mirror. M. Akiya and S. Nakashima I p170
Influence of coupled plasmon-polar optical phonon modes on the mobility of electrons in GaAs. C. Moglestue I p188
Investigation of nonreciprocal fin-line devices. S. Tedjini and E. Pic H p61
MBE GaAs Impatt diodes with reduced drift region for mm-wave frequencies. X. Zhang, J. Freyer, G. Weimann and W. Schlapp I p203
Method for evaluation of hysteretic interface properties and their application to anodised InSb MIS diodes. T. Nakagawa and H. Fujisada I p51
Monte-Carlo particle model study of a microwave photodetector. C. Moglestue I p103
Monte-Carlo particle model study of the influence of gate metallisation and gate geometry on the AC characteristics of GaAs MESFETs. C. Moglestue I p193
NMOS silicon gate transistors in large-area laser-crystallised silicon layers. M.A. Bösch, G.M. Chin, D. Herbst, J.K. Grogan, R.A. Lemons, D.M. Tennant and S.K. Tewksbury I p121
SVG guard-ring Al-Ti-Si Schottky diode for high-speed LSI applications. T. Fukushima, K. Ueno, T. Fukumoto and K. Tanaka I p59
Simple analytical one-dimensional model for saturation operation of the high-voltage bipolar power transistor. G.T. Wright and P.P. Frangos I p207
Single drift impatt diodes on diamond heat sinks for W-band frequencies. D. Leistner I p56
Visual indication of locally varying photoconductivity. W. Platte I p77

SEMICONDUCTOR LASERS

Distribution of modulated power among longitudinal modes of a semiconductor laser. S.J. Chua I p107
Experimental investigation of selfsustained oscillations in stripe-geometry DH lasers. B.S. Poh I p21
Frequency modulation of Impatt diodes by optical illumination. C. Chiu and J. Freyer I p28
High-speed transient effects in quarternary lasers. I.D. Henning H p133
Optical short-range radar for level control measurement. G. Kompa H p159
Refractive index to gain derivative ratio in GaAs/GaAlAs semiconductor injection lasers. B.S. Poh I p163

SIGNAL PROCESSING

14/11 GHz, 120 Mbit/s regenerative satellite transponder. G. Ohm F p442
Adaptive adjustment of receiver for distorted digital signals. A.P. Clark and S.F. Hau F p526
Application of Gram–Schmidt algorithm to optimum radar signal processing. A. Farina and F.A. Studer F p139
Application of a systolic array to adaptive beamforming. C.R. Ward, A.J. Robson, P.J. Hargrave and J.G. McWhirter F p638
Application of surface-acoustic-wave technology to burst-format spread-spectrum communications. M. Kowatsch F p734
Approach to the hardware implementation of digital signal processors using Mersenne number transforms. W.-C. Siu and A.G. Constantinides E p10
Architectural approach to alternate low-level primitive structures (ALPS) for acoustic signal processing. Y.S. Wu, A.G. Constantinides, T.E. Curtis and L.J. Wu F p327
Autocorrelation function of the multiplexed sequence. S.M. Jennings F p169
Baseband video distortion in memoryless nonlinear bandpass amplifiers (Summary). M.T. Abuelma'atti F p240
Continuous transmission FM sonar with one octave bandwidth and no blind time. P.T. Gough, A. de Roos and M.J. Cusdin F p270
Control ordered sonar hardware (COSH)—a hardware based signal processing graph implementation. T.E. Curtis, J.T. Wickenden and A.G. Constantinides F p584
Correlation systems in radio astronomy and related fields. P.C. Egau F p32
Cyclic convolution of long sequences using number theoretic transform. W.C. Siu and A.G. Constantinides G p119
Data transmission over UHF fading mobile radio channels. A.J. Bateman and J.P. McGeehan F p364 F d767
Decision tree design and applications in speech processing. G.R. Dattatreya and V.V.S. Sarma F p146
Derivation of impulse responses under minimum phase constraints. F. Takawira and D.G.W. Ingram F p425
Design and application of digital signal processors (Editorial). J.B.G. Roberts F p561
Detection probability of a partially fluctuating target. E. Dalle Mese and D. Giuli F p179
Digital implementation of a narrowband satellite receiver. C.P. Ash F p570
Error patterns in correlators with four-level quantisation. P.C. Egau F p40 F e239
Error probability of QASK with rectangular and circular symbol constellations in the presence of intersymbol quadrature channel and adjacent channel interference. I. Korn F p194
Evaluation of hybrid error control systems. D. Drajić and B. Vučetić F p183
Extension of maximum entropy spectral analysis. Part 1: The inclusion of prior information. D.R. Farrier F p15
Extension of maximum entropy spectral analysis. Part 2: Interpretation and application of the method. D.R. Farrier F p25
Fast start-up channel estimation. A.P. Clark, Z.C. Zhu and J.K. Joshi F p375
Figures of merit for VLSI implementations of digital signal processing algorithms. J.S. Ward, P. Barton, J.B.G. Roberts and B.J. Stanier F p64
Generalised information theory for inverse problems in signal processing. E.R. Pike, J.G. McWhirter, M. Bertero and C.de Mol F p660
Generating analogue FM pulses using a 1 bit digital technique. J.A. Johnston F p349
Graph-theoretic approach to composite-source-model estimation for image coding. D.K. Mitrakos and A.G. Constantinides F p71
Investigation of a radar site effect. P. Lewis F p695
LSI circuits for adaptive array processing in passive sonar. G. Bienvenu and B. Guillee F p577
Measurement of signal to quantising-noise ratio in ADPCM systems and its implications for echo cancellation. P.J. See and N.J.A. Forse F p219
Minimum bandwidth signals with various combinations of specified waveform parameters. R. Borge F p345
Modular design of sonar systems using functional units built from a standard set of VLSI building blocks. D.W. Wadham F p334
Multinotch logic-product polarisation suppression filters. A typical design example and its performance in a rain clutter environment. A.J. Poelman and J.R.F. Guy F p383
New direct regenerator for 16-ary QAM signalling. A. Riris F p407
Nonlinear polarisation-vector translation in radar systems. A promising concept for real-time polarisation-vector signal processing via a single-notch polarisation suppression filter. A.J. Poelman and J.R.F. Guy F p451
On the computation of discrete Fourier transform using Fermat number transform. W.-C. Siu and A.G. Constantinides F p7
On the response of a towed array to the acoustic field in shallow water. M.J. Buckingham F p298
Optimised bit level systolic array for convolution. J.V. McCanny, J.G. McWhirter and K. Wood F p632
Optimum MSK-type receivers for CPM on Gaussian and Rayleigh fading channels. A. Svensson and C.E. Sundberg F p480
Performance analysis of 16-ary QAM signalling through two-link nonlinear channels in additive Gaussian nooise. A.H. Aghvami F p403
Performance comparison of two suboptimum detection procedures in real environment. V. Milutinović F p341
Pseudobinary Viterbi detector. A.P. Clark and M. Clayden F p208
Rapid acquisition techniques in CDMA spread-spectrum systems. J.W. Mark and I.F. Blake F p223
Relationship between the maximum entropy method and a likelihood ratio test. D.R. Farrier F p714
Signal processing applications of a distributed array processor. J.B.G. Roberts, P. Simpson, B.C. Merrifield and J.F. Cross F p603
Signal processing with occam and the transputer. R. Taylor F p610
Some practical considerations in the design of sandwich transducers and their arrays. R. Morris F p280
Study of the relative sonar performance of incoherent and coherent processing against echo fading in shallow water. J.F. Dix and R.F. Palmer F p308
Systolic matrix and vector multiplication methods for signal processing. R.B. Urquhart and D. Wood F p623
The human body and its transducers: a real-time real-life computing and control system. M.H. Westbrook A p10
Two-dimensional discrete convolution algorithm. B. Arambepola F p553

SIMULATION

Analogue adaptive hybrid for digital transmission on subscriber lines. I. Korn F p517
Catastrophe model of the engineering design process. S.A. Bergen A p181
Fibre-optic local-area network with arbitrary topology. H.K. Pung and P.A. Davies H p77
Memory interference in multimicroprocessor systems with a time-shared bus. P.A. Grasso, T.S. Dillon and K.E. Forward E p61
Microprocessor system for measuring frequency spectra and computing transient responses of a power apparatus. S. Cristina, M. D'Amore and M. Salerno A p312

Microprocessor-controlled HVDC simulator. J. Arrillaga, J.C. Graham and H. Hlaba C p197
Natural decomposition of interconnected power systems for stability studies. M. Brucoli, F. Torelli and M. Trovato C p16
Normalised impedance of circular, trapezoidal and rectangular conductors in semicloseed slots: a unified transmission line approach. M.H.S. El-Markabi and E.M. Freeman A p129
Rapid acquisition techniques in CDMA spread-spectrum systems. J.W. Mark and I.F. Blake F p223
Sidescan sonar. M.L. Somers and A.R. Stubbs F p243
Simplified technique of model order reduction with performance verification by fast digital simulation. A.S. Morris D p69
Synthesis of wideband lumped planar directional couplers. G. Argaman and A. Saad H p198

SOLAR CELLS

On the dust-equivalent series resistance of a photovoltaic concentrator. A.K.M. Zakzouk I p17
Performance evaluation of photovoltaic silicon cells under concentrated sunlight. A.K.M. Zakzouk, A. Mujahid and M.S. El-Shoboksby I p66

SONICS AND ULTRASONICS

Sonar (Editorial). D. Creasey and B. Smith F p241

SPACE COMMUNICATION

Performance of space-based radar in the presence of earth clutter. J.S. Bird and A.W. Bridgewater F p491

SPEECH SYNTHESIS

Implementation of a parallel-formant speech synthesiser using a single-chip programmable signal processor. D.J. Quarmby and J.N. Holmes F p563
Performance of Videotex-to-speech convertor. O.R. Omotayo A p328

STABILITY

Complex sectors and multivariable on-axis and off-axis circle criteria. B. Kouvaritakis and R. Husband D p209
Design of optimal observers for structural control. M. Abdel-Rohman D p158
Infinite determinant method for stability analysis of periodic systems. S.K. Das and P.K. Rajagopalan D p189
Robust stability of diagonally dominant systems. I.F. Yeung and G.F. Bryant D p253

STANDARDISATION AND STANDARDS

Calibration of a precision three-port coaxial junction: a new component for immittance standardisation. D. Woods A p302
Medical ultrasonic standards at NPL. R.C. Preston and A.J. Livett A p233

SURFACE-ACOUSTIC-WAVE DEVICES (SAW)

Application of surface-acoustic-wave technology to burst-format spread-spectrum communications. M. Kowatsch F p734
Recent developments in SAW devices. M.F. Lewis, C.L. West, J.M. Deacon and R.F. Humphryes A p186

SWITCHES AND SWITCHING THEORY

Cutoff-taper performance of substrate-edge excited optoelectronic switches. W. Platte I p45
Distributed routing algorithm for a circuit/packet switching network. W. Yu, J.C. Majithia and J.W. Wong F p751
High-voltage high-frequency power-switching transistor module with switching-aid-circuit energy recovery. B.W. Williams B p7
Optical bistability in twin-stripe lasers. I.H. White and J.E. Carroll H p309
Quasi cut-through: New hybrid switching technique for computer communication networks. M. Ilyas and H.T. Mouftah E p1
Reliability analysis of hybrid redundancy systems. I. Koren and E. Shalev E p31
Thermo-optic waveguide interferometric modulator/switch in glass. M. Haruna and J. Koyama H p322

SWITCHGEAR

Current interruption by disconnecting switch and earthing switch in GIS. K. Suzuki, H. Mizoguchi, N. Shimokawara, Y. Murayama and S. Yanabu C p54
Radio frequency characteristics of HVDC convertor station components. R.V. DeVore, S. Pleasants and R. Caldecott C p61

SYNCHRONOUS GENERATORS

Self-excited induction machine as a small low-cost generator. J.M. Elder, J.T. Boys and J.L. Woodward C p33

SYNCHRONOUS MOTORS

Analysis and performance of a high-field permanent-magnet synchronous machine. K.J. Binns and T.M. Wong B p252
Influence of motor design and feed-current waveform on torque ripple in brushless DC drives. H.R. Bolton and R.A. Ashen B p82
New method for measuring X_d and X_q based on the P-Q diagram of the lossy salient-pole machine. A.Ah. Fock and P.M. Hart B p259

TELECOMMUNICATION

Analogue adaptive hybrid for digital transmission on subscriber lines. I. Korn F p517
Electrical network analogue for determining the optimal flows in multiterminal communication networks. B.V. Odintsov and A.C. Davies G p171
Future trends in telecommunications transmission—a personal view. P. Cochrane F p669
HHI service integrated optical broadband communications system: results of a long-time operation and review. H.W. Kreutzer and W. Werner H p87
High-speed optical-fibre ring network with a register insertion access protocol. F. Abdul-Ghani and P.A. Davies H p83
Performance comparison of two suboptimum detection procedures in real environment. V. Milutinović F p341
Pseudobinary Viterbi detector. A.P. Clark and M. Clayden F p208
Transient probability response of cycle slip occurrence in the PSK-TDMA carrier recovery. T. Fujino, Y. Umeda and E. Yamazaki F p729

TELECOMMUNICATION TRAFFIC

Combined mobile telephone and dispatch services in a cellular land-mobile radio system. M. McDonnell and N.D. Georganas F p357
High-speed optical-fibre ring network with a register insertion access protocol. F. Abdul-Ghani and P.A. Davies H p83

TELEPHONY

Analogue adaptive hybrid for digital transmission on subscriber lines. I. Korn F p517

TELETEXT

Performance of Videotex-to-speech convertor. O.R. Omotayo A p328

TELEVISION

Colour selection in the channel-multiplier CRT. J.R. Mansell, A.W. Woodhead, A.G. Knapp and H.D. Stone I p13
Flat deflection system for a channel multiplier CRT. D.L. Lamport, A.W. Woodhead, D. Washington and C.D. Overall I p10
Large-area channel electron multiplier for CRT applications. A.G. Knapp, D. Washington, A.J. Guest, R.W.A. Gill, R. Pook and L.H. Francis I p6

THYRISTORS

Charge control model for switching transients of metal-tunnel oxide-semiconductor thyristor. A.K. Duong and A.G. Nassibian I p135
Current-impulse-displacement thyristor commutation with controlled trapped energy. B.W. Williams B p21
Software realisation of synchronisation and firing control of thyristor convertors. S.K. Tso and F.W. Pu B p141

TRACTION

AC/DC: one man's view. J.D. McColl A p38
Probabilistic representation of harmonic currents in AC traction systems. R.E. Morrison and A.D. Clark B p181
Rheostatic stabilisation of a chopper-controlled brake for traction drives. J. Allan, B. Mellitt and M.H. Pong B p190
Switched reluctance motor drives for rail traction: a second view. W.F. Ray, R.M. Davis, P.J. Lawrenson, J.M. Stephenson, N.N. Fulton and R.J. Blake B p220 B d263

TRANSDUCERS

Discussion of the finite-element modelling and performance of ring-shell projectors. B.A. Armstrong and G.W. McMahon F p275
High-frequency sonar transducers: a review of current practice. B.V. Smith and B.K. Gazey F p285
Ship velocity determination by Doppler and correlation techniques. P.N. Denbigh F p315
The human body and its transducers: a real-time real-life computing and control system. M.H. Westbrook A p10

TRANSFORMERS

Microprocessor system for measuring frequency spectra and computing transient responses of a power apparatus. S. Cristina, M. D'Amore and M. Salerno A p312
New method for determination of steady-state temperature rises of transformers. Z. Godec A p307
Power conversion and control with zero AC current harmonics by means of a time-variable transformer. S. Singer G p147

TRANSIENTS

Selection of transmission circuit models for power-system transient studies. J.R. Smith and W.W. Bell C p1

TRANSISTORS

Calculation of amplification factor μ of static induced transistor. X. ChengKun I p87
Detailed analysis of nonidealities in MOS fully integrated active RC filters based on balanced networks. M. Banu and Y. Tsividis G p190
High-voltage high-frequency power-switching transistor module with switching-aid-circuit energy recovery. B.W. Williams B p7
Monte-Carlo particle model study of the influence of gate metallisation and gate geometry on the AC characteristics of GaAs MESFETs. C. Moglestue I p193
NMOS silicon gate transistors in large-area laser-crystallised silicon layers. M.A. Bösch, G.M. Chin, D. Herbst, J.K. Grogan, R.A. Lemons, D.M. Tennant and S.K. Tewksbury I p121

TRANSMISSION AND DISTRIBUTION PLANT

400 kV transmission system, aspects and problems. P.W. Read and D.M. Barr C p292
Castle Peak B Power Station, Hong Kong. (Editorial). H. Heimer C p216
China Light & Power's project strategy. R.W. Brooks C p222
Fuel-cost minimisation for both real- and reactive-power dispatches. K.Y. Lee, Y.M. Park and J.L. Ortiz C p85
Recent history of electricity supply in Hong Kong. W.F. Stones C p219

TRANSMISSION-LINES

Eigenfunction solution of a class of TEM transmission line. T.K. Seshadri and K. Rajaiah H p279 H e289
New analytical approach for computing DC unipolar corona losses. M. D'Amore, V. Daniele and G. Ghione A p318

New approach to analyse strip- and microstrip-like transmission lines with anisotropic substrates having a tilted optical axis. B. Bhat and S.K. Koul H p191 H e289
Normalised impedance of circular, trapezoidal and rectangular conductors in semiclosed slots: a unified transmission line approach. M.H.S. El-Markabi and E.M. Freeman A p129

TRANSMITTERS

Improved acousto-optic laser scanner guidance system. M. Higgins, G. Titmuss and R. Martyn H p229

TRANSPORTATION

Role of the consultant in mass transit systems. J.T. Edwards A p406

TROPOSPHERIC PROPAGATION

Evaluation of a site diversity model for satellite communications systems. D.V. Rogers and J.E. Allnutt F p501

TURBOGENERATORS

Design features of the turbine-generator plant. R.B. Bennett and F.R. Harris C p252

ULTRASONICS

Acoustic emission: its techniques and applications. R. Dukes and E.A. Culpan A p241
Bulk acoustic microwave delay lines: design, fabrication and performance. P. Defranould A p216
High-voltage spark discharge source as an ultrasonic generator. J.A. Cooper, R.J. Dewhurst, S. Moody and S.B. Palmer A p275
Medical ultrasonic standards at NPL. R.C. Preston and A.J. Livett A p233
Medical ultrasonics. P.N.T. Wells A p225
Recent developments in SAW devices. M.F. Lewis, C.L. West, J.M. Deacon and R.F. Humphryes A p186
Review of recent developments in ultrasonic NDT systems in the CEGB. K.J. Bowker and R.C. Owen A p252
Review of some recent advances in quantitative ultrasonic NDT. L.J. Bond, M. Punjani and N. Saffari A p265
Ultrasonics (Editorial). L.J. Bond A p185

UNDERGROUND CABLES

Cooling of oil-filled cable joints using heat pipes. J.P. Ruiter and A.W. Thus C p340
Improved method to calculate the critical conditions for drying out sandy soils around power cables. G.J. Groeneveld, A.L. Snijders, G. Koopmans and J. Vermeer C p42

VERY LARGE SCALE INTEGRATION

Figures of merit for VLSI implementations of digital signal processing algorithms. J.S. Ward, P. Barton, J.B.G. Roberts and B.J. Stanier F p64
Gateway: a teaching exercise in gate-array technology. M.A. Jack and J.M. Robertson A p722
Hot-carrier effects in submicrometre MOS VLSIs. E. Takeda I p153
Optimised bit level systolic array for convolution. J.V. McCanny, J.G. McWhirter and K. Wood F p632
Part 1: VLSI implementation of an optimised hierarchical multiplier. H.C. Yung and C.R. Allen G p56
Part 2: An optimising analysis of hierarchical multipliers for VLSI. H.C. Yung and C.R. Allen G p61
Signal processing applications of a distributed array processor. J.B.G. Roberts, P. Simpson, B.C. Merrifield and J.F. Cross F p603
VLSI—evolution or revolution. T. Lamdan E p230

VOLTAGE REGULATORS

Transient response of the modified variable-phase-shift automatic voltage regulator. J.E. Allos, M.K. Mahmood and F.A.M. Al-Qirimli G p10

WAVEGUIDES

Application of modal analysis to a waveguide-cavity junction formed by an iris obstable. P.S. Kooi, M.S. Leong and H. Thng H p35
Circular waveguide bifurcation for asymmetric modes. H.W. Schilling and R.E. Collin H p397
Dependence of inplane scattering levels in Ti : $LiNbO_3$ optical waveguides on diffusion time. M.N. Armenise, C. Canali, M. De Sario, P. Franzosi, J. Singh, R.H. Hutchins and R.M. De La Rue H p295
Design and performance of a low crosstalk directional coupler switch. J.S. Wilkinson and M.G.F. Wilson H p304 H e410
Dispersion in unilateral fin lines with two dielectric layers. H.C.C. Fernandes and A.J. Giarola H p139
Dual-mode coaxial feed with low crosspolarisation. R.E. Collin and H.W. Schilling H p405
Dualband horn with inherent isolation between its transmit and receive ports. L. Shafai, A. Ittipiboon, E. Bridges and F. Hyjazie H p143
Effects of mutual coupling in conical horn arrays. P.J.B. Clarricoats, S.M. Tun and C.G. Parini H p165
Excitation of planar slot array from rectangular waveguide. B.N. Das, P.S. Deshmukh and V.M. Pandharipande H p99
Five-way gyrotron power combiner. Q.L. Hu, I.G. Gosling and A.H.W. Beck H p65
Guided wave coupling in integrated-optic gratings: normal incidence. J. Van Roey, B. Denturck and P.E. Lagasse H p282
High-speed transient effects in quarternary lasers. I.D. Henning H p133
Millimetre-wave hybrid dielectric-microstrip antenna array. J.R. James, G. John and C.M. Hall H p341
Printed dipole millimetre-wave array using an insular guide feeder. M.T. BirandN. Williams H p107
Propagation and radiation behaviour of dual-depth corrugated horns. A.D. Olver, K.K. Yang and P.J.B. Clarricoats H p179
Rigorous analysis of an embedded optical waveguide. T. Miyamoto and K. Yasuura H p45
Some guiding structures for millimetre waves. F.A. Benson and F.J. Tischer A p429
Study of planar-helix slow-wave structure for application to travelling-wave tubes. D. Chadha, S. Aditya and R.K. Arora H p14
Thermo-optic waveguide interferometric modulator/switch in glass. M. Haruna and J. Koyama H p322

WIND POWER

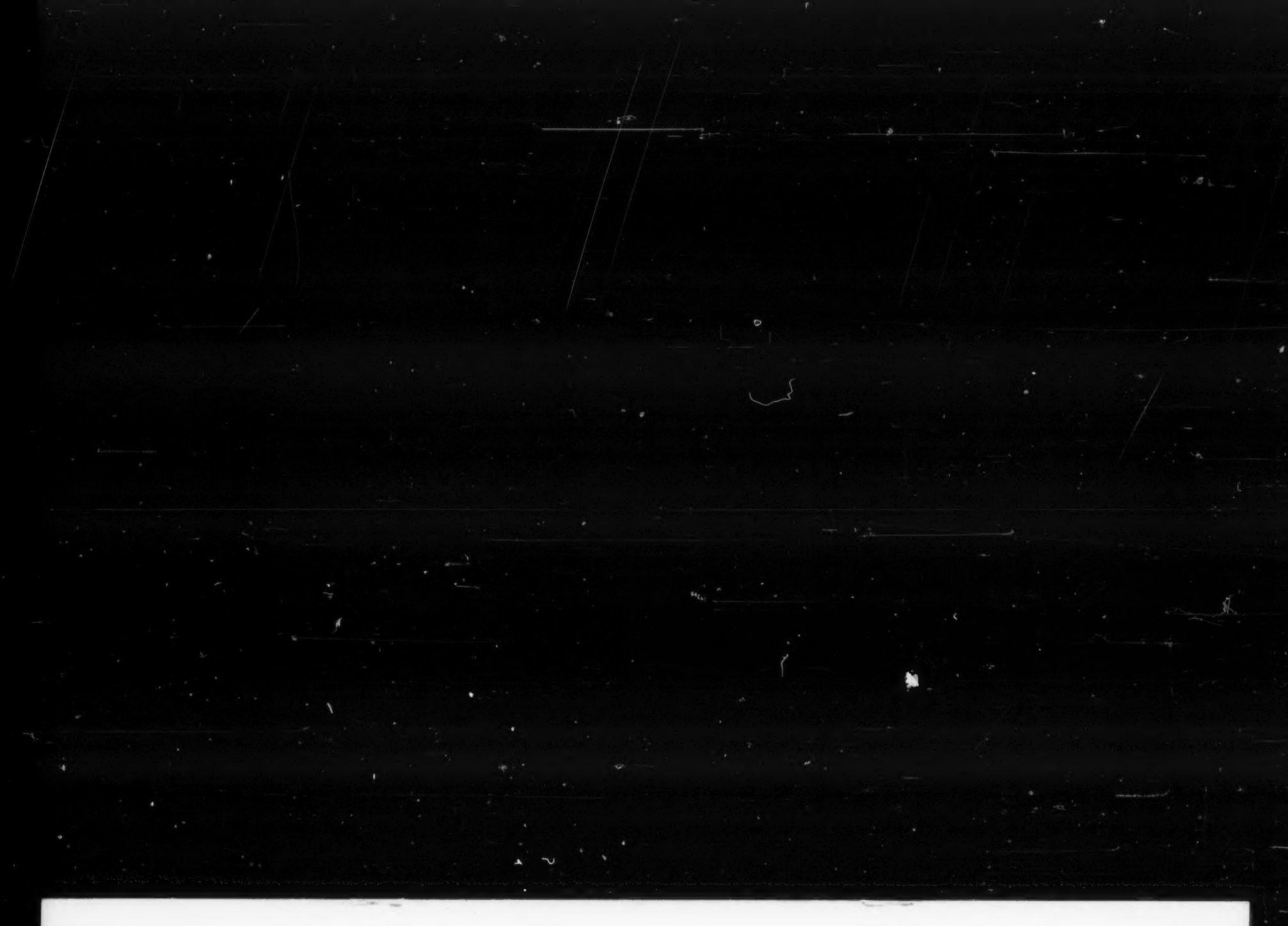
Cycloconvertor-excited divided-winding doubly-fed machine as a wind-power convertor. P.G. Holmes and N.A. Elsonbaty B p61
Looking for alternatives. D.T. Swift-Hook A p44

Book reviews

An introduction to MOS LSI design. J. Mavor, M.A. Jack and P.B. Denyer I p142
An introduction to thin films. L.I. Maissel and M.H. Francombe I p41
Analysis and synthesis of wire antennas. B.D. Popovic, M.B. Dragovic and A.R. Djordjevic: H p246
Broadband feedback amplifiers: D.J.H. Maclean G p90
Charged particle interactions with solids. Y.-H. Ohtsuki I p142
Computer controlled testing and instrumentation. M. Colloms E p155
Design of high-performance negative-feedback amplifiers: E.H. Nordholt G p90
Digital bipolar integrated circuits: M.I. Elmasry G p135
Digital communications satellite/earth station engineering. K. Feher F p560
Digital filters: R.W. Hamming G p134
Digital systems with algorithm implementation. M. Davio, J.-P. Deschamps and A. Thayse E p102
Electric plasmas: their nature and uses. A. Von Engel A p641
Electromagnetism: paths to research. D. Teplitz (Ed.) A p139
Energy in electromagnetism. H.G. Booker A p128
Field and wave electromagnetics. D.K. Cheng A p660
GaAs FET principles and technology. J.V. DiLorenzo and D.D. Khandelwal I p111
High-speed memory systems. A.V. Pohm and O.P. Agrawal E p18
Illustrated guideback to electronic devices and circuits: F.W. Hughes G p91
Integrated optics: physics and applications. S. Martell and A.N. Chester (Eds.) H p220
Lock-in amplifiers: Principles and applications: M.L. Meade G p134
MOS device and circuit design. O.J. McCarthy I p112
Man-computer interaction: Human factors aspects of computers and people. B. Shackel (Ed.) E p154
Materials and apparatus in quantum radiophysics. N.G. Basov (Ed.) A p95
Measurement and control of liquid level. Chun H. Cho D p164
Multivariable system theory and design. R.V. Patel and N. Munro D p79
Photovoltaic and photoelectrochemical solar energy conversion. F. Cardon, W.P. Gomes and W. Dekeyser (Eds.) I p40
Photovoltaics. R.G. Seippel H p228
Physical processes in laser-materials interactions. M. Bertolotti H p116
Power electronics. F. Csáki, K. Ganszky, I. Ipsits and S. Marti B p234
Programming system methodologies. C.A. Zeigler E p103
Robotic technology. A. Pugh D p207
Semiconductor and electronic devices. A. Bar-Lev I p142
Semiconductor devices and circuits H. Zanger G p260
Shaped reflector antenna design. B.S. Westcott H p419
Solid hydrogen. Theory of the properties of solid H_2, HD and D_2. J. Van Kranendonk A p306
The application of laser light scattering to the study of biological motion. J.C. Earnshaw and M.W. Steer (Eds.) H p220
The application of laser light scattering to the study of biological motion. J.C. Earnshaw and M.W. Steer (Eds.) A p144
Thin film solar cells. K.L. Chopra and S.R. Das I p81

Conference reports

14th IEEE international symposium on multiple valued logic S.L. Hurst E p233
3rd international conference on reliability of power supply systems M.J. Short and W.G. Watson C p25
Eighth power systems computation conference (PSCC) B.J. Cory and D.C. Macdonald C p363
IEE Colloquium on Digital television techniques. P.G. Parker F p558
IEE Colloquium on Digitalisation of the TV receiver. R.N. Jackson F p559
IEE Colloquium on Electronic support measures. P.M. Grant F p382
IEE Colloquium on the Current status of systolic array research in the UK S.G. Smith F p667
IEEE gallium-arsenide integrated-circuit symposium. B.W. Flynn I p72
IEEE summer power meeting P.G. McLaren C p362
IEEE winter power meeting. B.J. Cory C p115
IRSI 83-International Radar Symposium India. B. Wardrop F F p99

Conference publications

213 Electrical machines—design and applications B p17
218 Electrical safety in hazardous environments B p19
231 International conference on secure communication systems F p750
233 Energy options: The role of alternatives in the world energy scene A p300
255 Reliability of power supply systems C p31